

AD-A078 561

EXERCISE DESERT ROCK LAS VEGAS NV  
EXERCISE DESERT ROCK VII AND VIII. ANNEX L.(U)  
1957

F/6 18/3

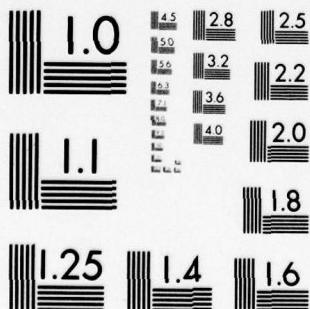
UNCLASSIFIED

NL

| OF 3  
AD  
A078561



07856



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

**PHOTOGRAPH THIS SHEET**

ADA078561

DTIC ACCESSION NUMBER

三

15358

Desert Rock Exercise VII and VIII  
Final Report Annex L 1957  
DOCUMENT IDENTIFICATION

## **DOCUMENT IDENTIFICATION**

1

## **INVENTORY**

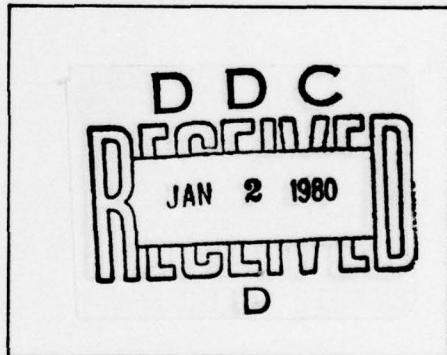
**DISTRIBUTION STATEMENT A**

**Approved for public release  
Distribution Unlimited**

---

**DISTRIBUTION STATEMENT**

<b>ACCESSION FOR</b>	
NTIS	GRA&I
DTIC	TAB
UNANNOUNCED	
<b>JUSTIFICATION</b>	
<i>Per Mr. on file</i>	
<b>BY</b>	
<b>DISTRIBUTION /</b>	
<b>AVAILABILITY CODES</b>	
<b>DIST</b>	<b>AVAIL AND/OR SPECIAL</b>
A	



**DATE ACCESSIONED**

---

**DISTRIBUTION STAMP**

~~79-1218570~~  
DATE RECEIVED IN DTC

**PHOTOGRAPH THIS SHEET AND RETURN TO DTIC-DDA-2**

411424

DTIC FORM OCT 79 70A

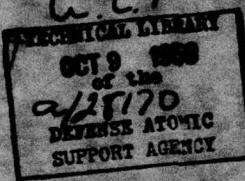
## **DOCUMENT PROCESSING SHEET**

ADA 078561

UNCLASSIFIED

UNCLASSIFIED

DESERT ROCK Exercise VII and VIII  
Final Report  
Annex L  
1957



42618

UNCLASSIFIED

DOE NO RESTRICTED DATA OR FORMERLY RESTRICTED DATA.  
DOE HAS NO RESTRICTED DATA OR FORMERLY RESTRICTED DATA.  
DOE HAS NO RESTRICTED DATA OR FORMERLY RESTRICTED DATA.



68-002  
Classification (Cancelled) \_\_\_\_\_  
Approved for public release  
by [unclear] 2735  
10/19/2018

Classification (Cancelled) \_\_\_\_\_  
Approved for public release  
by [unclear] 2735  
10/19/2018

**UNCLASSIFIED**

RECOMMENDED FORMAT FOR PRINTING OF PHOTOS

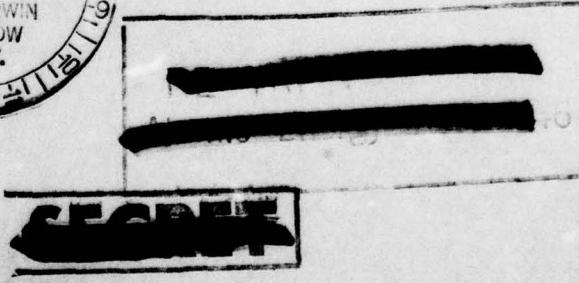
It is recommended that the pre-detonation and post-detonation photos contained in this Annex be printed as indicated on the attached format. Each photo has been labeled to show photo number and before or after as appropriate. The words BEFORE and AFTER are used for brevity.

An alternate system of printing photos which would conserve bulk, space, and facilitate ease of reference is shown in the alternate format. However, it is not considered as practical from a production standpoint.

MAY BE DOWNGRADED TO UNCLASSIFIED WHEN  
SEPARATED FROM CLASSIFIED INCLOSURE



42718



**UNCLASSIFIED**

100348

**UNCLASSIFIED**

210788

PHOTO

STORY

BEFORE

4 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ "

4 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ "

S-40 NO. 1

PLEASE DO NOT REMOVE TO UNCLASSIFIED INCLOSURE  
REMOVED FROM CLASSIFIED INCLOSURE

AFTER

STORY

PHOTO

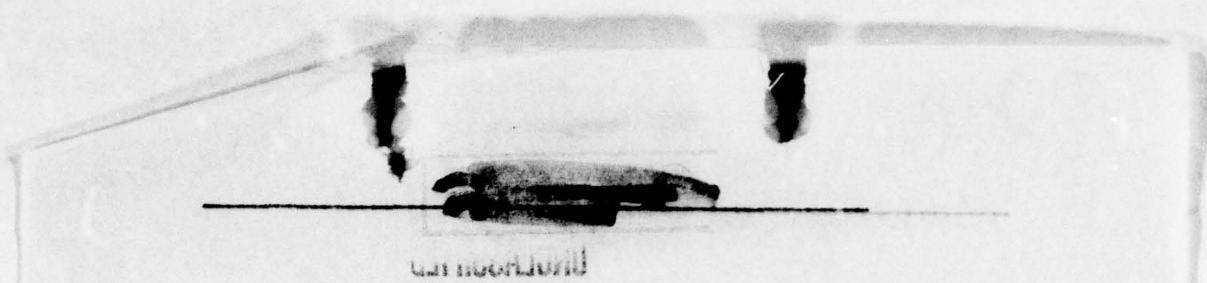
STORY

4 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ "

4 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ "



**UNCLASSIFIED**



AFTER

PHOTO

4 $\frac{1}{2}$ " x 3 $\frac{1}{4}$ "

STK#

4 $\frac{1}{2}$ " x 3 $\frac{1}{4}$ "

BEFORE

L.O. NO. 2



AFTER

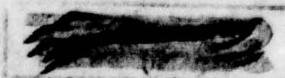
PHOTO

4 $\frac{1}{2}$ " x 3 $\frac{1}{4}$ "

STK#

4 $\frac{1}{2}$ " x 3 $\frac{1}{4}$ "

UNCLASSIFIED



ALTERNATE FORMAT

UNCLASSIFIED

PHOTO

No. 1

4 $\frac{1}{2}$ " x 3 $\frac{1}{8}$ "

BEFORE

ITEM	YARDS FR GZ	ORIENTA- TION	DAMAGE		DESCRIPTION OF ACTUAL DAMAGES
			PREDICTED	ACTUAL	
Truck, $\frac{1}{4}$ ton	000	Head On, Surface	Severe	Severe	Hood torn off; seats ripped out; paint scorched; engine parts cracked and require replacing; displaced several yards.

MAY BE DOWNGRADED TO UNCLASSIFIED WHEN  
SEPARATED FROM CLEARED INCLOSURE



UNCLASSIFIED

PHOTO

4 $\frac{1}{2}$ " x 3 $\frac{1}{8}$ "

UNCLASSIFIED

ANNEX L  
TO FINAL REPORT  
EXERCISE DESERT ROCK

VII and VIII



1957

UNCLASSIFIED



RESTRICTED DATA

Atomic Energy

**SECRET**

TABLE OF CONTENTS

**UNCLASSIFIED**

PART I

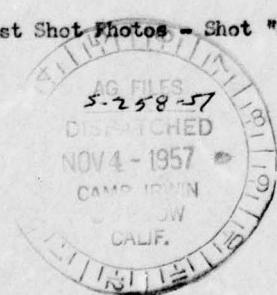
- Atomic Bursts "PRISCILLA" and "SMOKY" ..... Tab A  
General Information ..... Tab B

PART II

- Technical Consideration - Shot "PRISCILLA"..... Tab C  
Equipment Display - Shot "PRISCILLA"..... Tab D  
Damage Comparison - Predicted vs Actual - Shot "PRISCILLA"..... Tab E  
Pre and Post Shot Photos - Shot "PRISCILLA" ..... Tab F

PART III

- Technical Considerations - Shot "SMOKY"..... Tab G  
Equipment Display - Shot "SMOKY"..... Tab H  
Damage Comparison - Predicted vs Actual - Shot "SMOKY"..... Tab I  
Pre and Post Shot Photos - Shot "SMOKY"..... Tab J



**UNCLASSIFIED**

**SECRET**

**RESTRICTED DATA**  
Atomics Energy Lab 1946

**UNCL**

General View

of

ATOMIC BURST

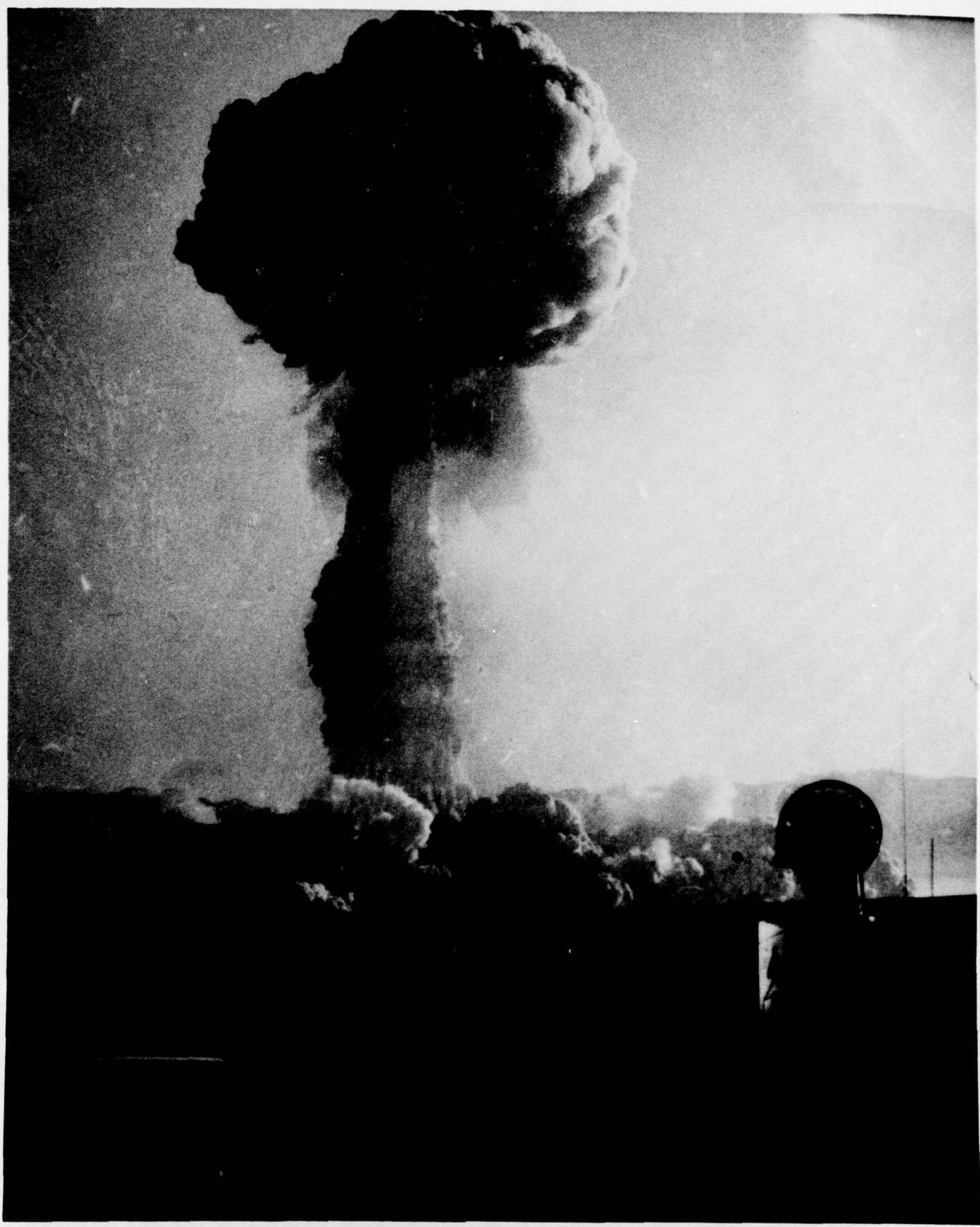
"PRISCILLA"

39 KT

700' Ballon

3  
UNCLASSIFIED

RESTRICTED DATA  
Atomic Energy Act 1946



**UNCLASSIFIED**

General View

of

ATOMIC BURST

"SMOKY"

45 KT

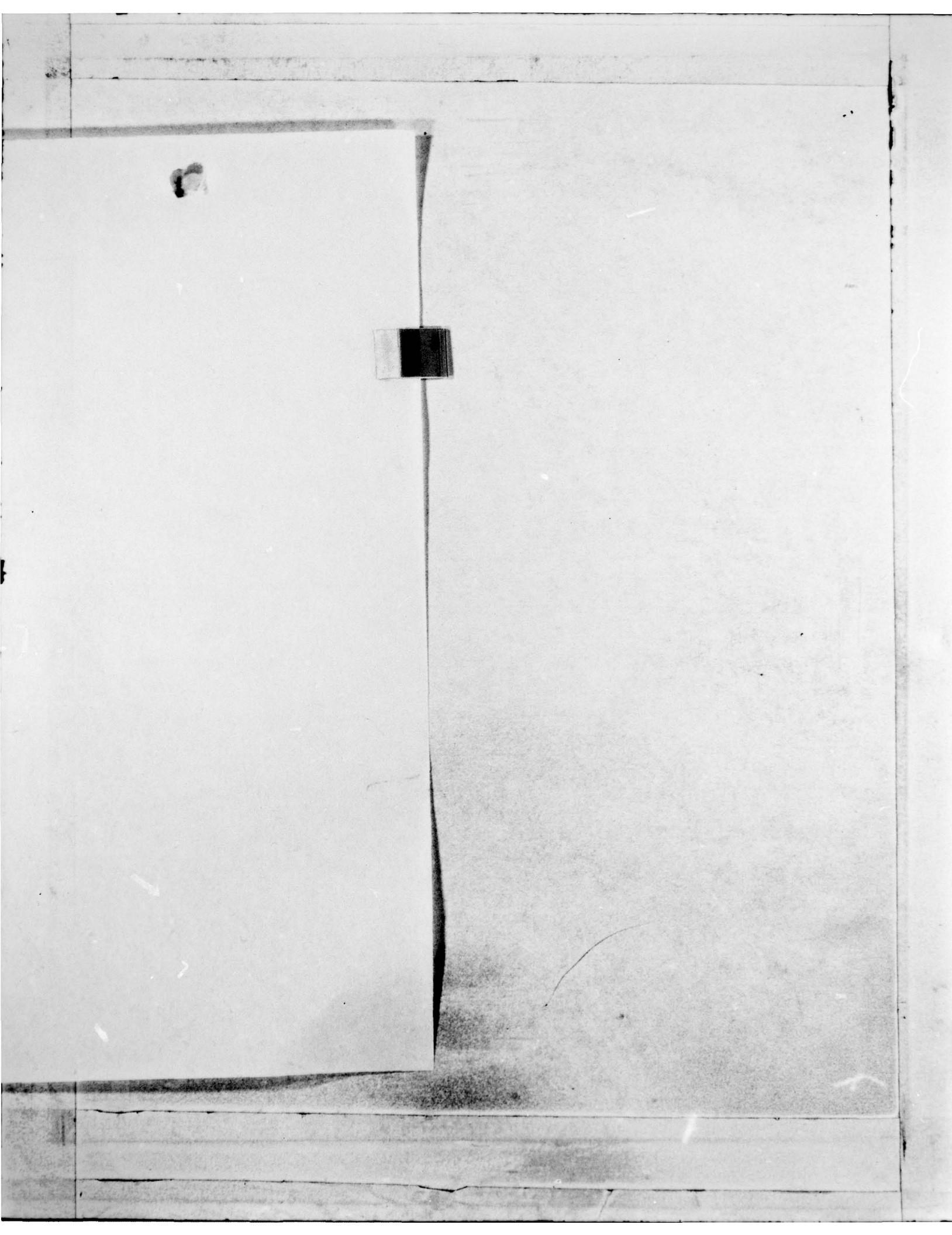
700' Tower

4

**UNCLASSIFIED**

UNCLASSIFIED DATA  
Atomic Energy Act 1946





**SECRET**

General Information

The purpose of displaying the various types of field equipment shown herein was to afford all participating troops and official observers reporting to Camp Desert Rock, Nevada, and opportunity to gain an appreciation of the effects of an atomic detonation on various types of field equipment.

The two atomic detonations considered in this report represent the only shots in which field equipment peculiar to the services was displayed solely for the express purpose of indoctrinating official observers and troop participants on the effects of an atomic detonation. Originally, at the beginning of the exercise, equipment display was planned for four shots as follows:

Shot	Design Yield	Type
PRISCILLA	40 KT	700' Balloon
SHASTA	12 KT	500' Tower
SMOKY	45 KT	700' Tower
NEWTON	50 KT	1500' Balloon

However, due to numerous delays and changes in shot schedules only "PRISCILLA" and "SMOKY" could be utilized in conjunction with the observer program.

Approximately 1325 observers and troop participants were afforded the opportunity to observe the pre and post shot equipment display area during shot "PRISCILLA", and 920 during shot "SMOKY". All observers reporting to Camp Desert Rock for other than the above shots were escorted on a conducted tour of the "PRISCILLA" post shot equipment display area to view the effects of a 40 KT atomic detonation on service equipment.

**UNCLASSIFIED**

**SECRET**

Assignment of real estate for the purpose of display of equipment was made by AEC, Camp Mercury, Nevada. Actual positioning of equipment in the vicinity of ground zero, and within the real estate boundaries allocated, was determined by the Deputy Exercise Directors Staff. In no case was any equipment placed further than 2500 yards from ground zero. All equipment was placed at varying orientations to ground zero, and in some cases, dug-in or placed in defilade on the surface of the ground. Defilade protection was effected in shot "SMOKY" only.

The atomic shot "PRISCILLA", which was detonated at Frenchman's Flat in the Nevada Test Site on 24 June 1957, indicated the effects on equipment over extremely flat uninterrupted terrain of ideal surface conditions. The atomic shot "SMOKY", detonated in the Yucca Flat area on the Nevada Test Site on 31 August 1957, presented terrain conditions of both the flat surface conditions and the "hill and dale" or interrupted surface effect. Results of these conditions imposed on effects on various types of field equipment from an atomic detonation are contained herein.

Damage prediction computations are based strictly on the use of formulas and iso-damage curves in TM 23-200, Capabilities of Atomic Weapons. Damage levels are in accordance with criteria established in paragraph 56, page 255 of the manual.

Equipment selected for prediction of damage was selected at random without any attempt being made to position equipment within an assured damage level.

In the case of shot "PRISCILLA", a review of predicted and actual damage reveals almost 100 percent prediction of the damage actually sustained. This was relatively simple since terrain was flat and without obstruction

[REDACTED]  
**UNCLASSIFIED**

6

[REDACTED]  
RESTRICTED DATA  
A [REDACTED] 1946  
[REDACTED]

**SECRET**

and straight line interpolation could be made for intermediate distances from ground zero to target. The foregoing can be applied equally as well to the administrative display of equipment in shot "SMOKY". However, prediction of damage, in the case of equipment displayed tactically in "SMOKY", was not as successful. This was not due however, to erroneous results of computations based on TM 23-200, but rather on the belief that equipment was in full defilade when actually it was not. Subsequent computations, based on equipment being in partial defilade, supported these findings. It is of importance to note that equipment positioned in partial defilade suffered predicted severe damage to the exposed portion and light damage to the lower or protected portion of the equipment. Actual on the ground evaluation readily supported the rule, in predicting damage, to modify predictions of damage by reducing by two levels in the case of severe, and by one level in the case of moderate when equipment is in full defilade. This theory was fully correct in those cases where equipment was in complete defilade.

Damage predictions to drag sensitive targets based on damage criteria in TM 23-200 can be employed with excellent reliability. Secondary tests conducted to predict thermal damage to heat susceptible targets also produced excellent reliability.

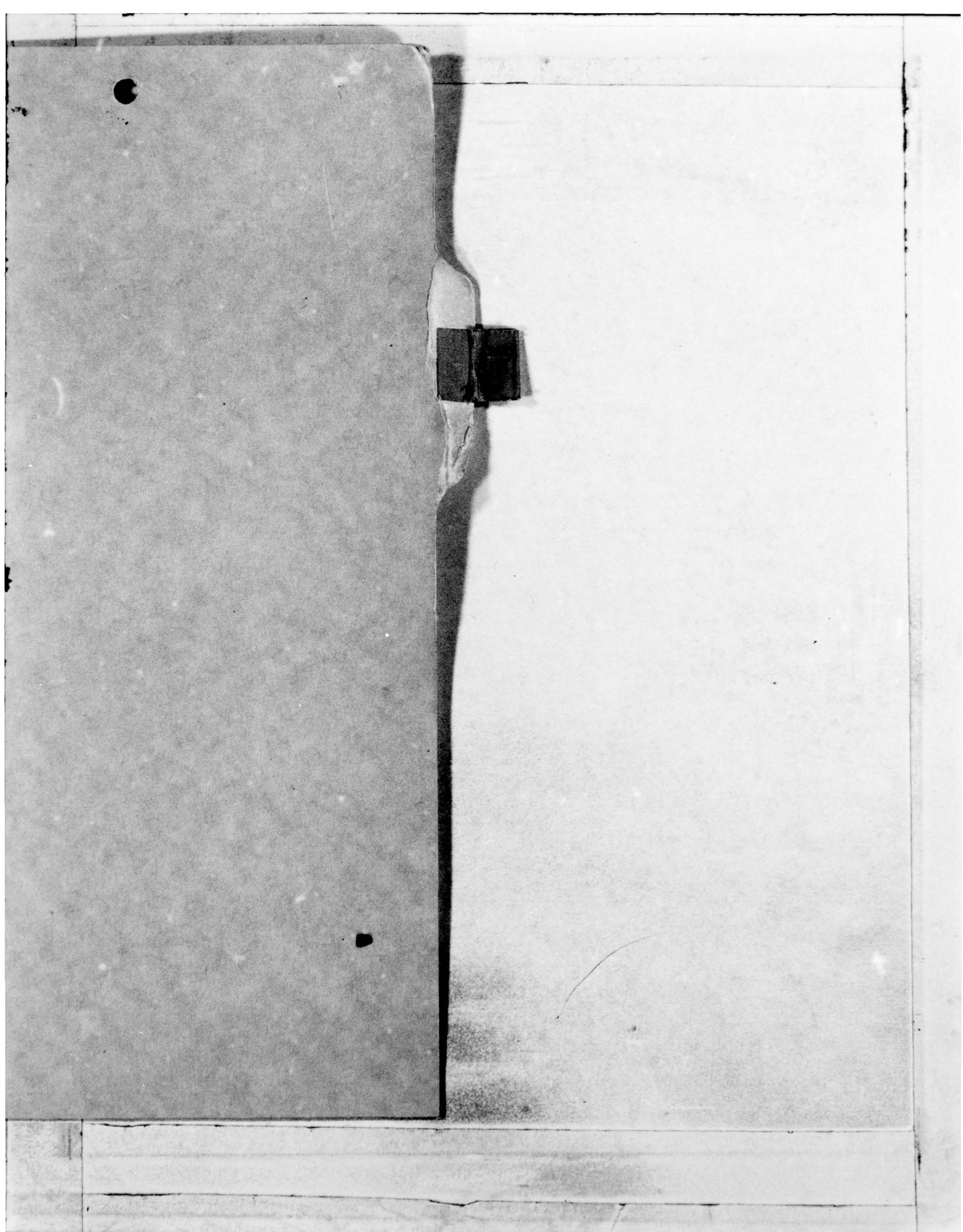
All photos of equipment and resultant damage were taken in almost all cases, on a line between ground zero and the item being photographed.

Requirements for additional prints of photos contained herein should be forwarded to the following agency:

Army Photographic Agency  
Room 5A 474  
The Pentagon  
Washington 25, D. C.

REF ID: A65411

At [REDACTED] 1946



Technical Considerations  
Shot "PRISCILLA"  
(Shot Day - 24 June 1957)

~~SECRET~~

Design Yield - 40 KT

Actual Yield - 39 KT

Ht of Burst - 700 Feet

Time of Burst - 0445 Hours

Temperature - 17<sup>0</sup>C

Air Density - 910 mb

Elevation - 3776 Feet Above MSL (Burst Point)

Humidity - 29 Percent

*UNCLASSIFIED*

DYNAMIC PRESSURES

60 psi	-	480 Yards
40 psi	-	545 Yards
20 psi	-	665 Yards
15 psi	-	720 Yards
10 psi	-	800 Yards
5 psi	-	990 Yards
2 psi	-	1230 Yards
1 psi	-	1490 Yards

THERMAL RADIATION

60 cal/cm <sup>2</sup>	-	1250 Yards
40 cal/cm <sup>2</sup>	-	1550 Yards
30 cal/cm <sup>2</sup>	-	1775 Yards
20 cal/cm <sup>2</sup>	-	2200 Yards
10 cal/cm <sup>2</sup>	-	3050 Yards
5 cal/cm <sup>2</sup>	-	4200 Yards

All computations to arrive at predicted damage was based on scaling laws and damage curves in TM 23-200, Capabilities of Atomic Weapons, exclusively.

~~SECRET~~

*UNCLASSIFIED*

[REDACTED]

UNCLASSIFIED

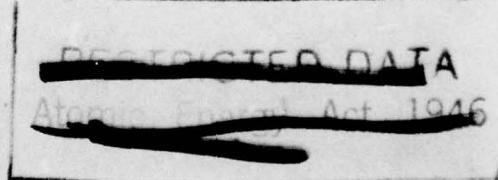
EQUIPMENT DISPLAY AREA

Shot "PRISCILLA"

[REDACTED]

[REDACTED]

UNCLASSIFIED

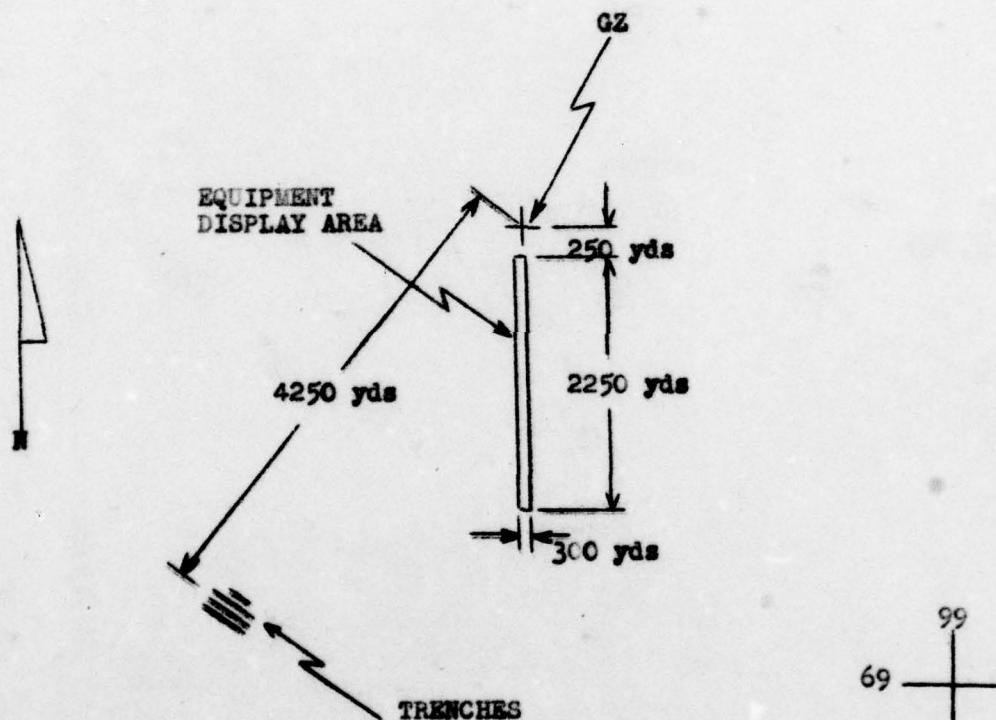


**SECRET**  
PRISCIUS

UNCLASSIFIED

92  
76

Map: NEVADA, 1:50,000  
FRENCHMAN LAKE  
Sheet



9  
UNCLASSIFIED

RESTRICTED DATA  
Act 1946

~~SECRET~~ EQUIPMENT DISPLAY AREA SHOP "PRISCILLA"

167

GZ

300 yds

250 yds

GRP I	250 yds	
GRP II	350 yds	
GRP III	450 yds	
GRP IV	600 yds	
GRP V	900 yds	
GRP VI	1200 yds	
GRP VII	1500 yds	
GRP VIII	2000 yds	
GRP IX	2500 yds	

TRENCHES

4250 yds

2250 yds

LAWRENCE

- INDICATES ITEM ON DISPLAY ON SURFACE
  - ⊕ INDICATES ITEM DUG-IN
  - ↑ INDICATES ITEM FACING SIDE-ON
  - ↗ INDICATES ITEM FACING HEAD-ON

~~MANNEQUIN~~ UNCLASSIFIED

10

~~SECRET~~

EQUIPMENT DISPLAY  
Shot "PRISCILLA"

GP	ITEM	YARDS GZ	PREDICTED DAMAGE	ACTUAL DAMAGE
I	Mortar, 81mm Tank, M24	300 345	Severe Severe	Moderate Severe
II	Tank, M4 Truck, 2½ ton	364 380	Severe Severe	Severe Severe
III	Truck, 2½ ton	515	Severe	Severe
IV	Tank, M4 Tractor, Engineer Crane, shovel Cans, gas 5 gal	600 602 618 632	Moderate Severe Severe Light	Light Severe Severe Light
V	Truck, 2½ ton MG, cal 30 Truck, ½ ton Tank, M24 MG, Cal 30 Truck, ¼ ton Carrier, M29c	900 902 906 912 915 922 930	Severe Mod-Lt Severe Moderate Light Light Severe	Severe Moderate Severe Moderate Light Light Severe
VI	MG, Cal 50 Trailer, 1 ton Truck, ½ ton Truck 2½ ton Truck, ¼ ton Truck, ¾ ton Tank, M24	1200 1202 1205 1210 1215 1225 1242	Light Moderate Moderate Moderate Mod-Lt Mod-Lt Mod-Lt	Light Light Moderate Moderate None Light Light
VII	Mannequin, Stdg. Mortar, 81mm Tank, M4 Gun, 75mm AT Mannequin, Prone	1500 1500 1508 1512 1528	Destroyed Light Light Light Destroyed	Destroyed Light Light Light Destroyed
VIII	Tractor, dozer full track Gun, 40mm AAA	2000 2010	Light Light	None None
IX	Mannequin, Standing Truck, ½ ton Mannequin, Prone	2500 2510 2515	Scorched Light Singed	Destroyed Light Singed
Trenches	Mannequin	4250	None	None

11

~~SECRET~~  
UNCLASSIFIED

RECORDED DATA  
Atomic Energy Act 1946

"PRISCILLA"

and

Equipment Display Area

(Right)

UNCLASSIFIED

UNCLASSIFIED



UNCLASSIFIED

UNCLASSIFIED



UNCLASSIFIED

UNCLASSIFIED

DAMAGE COMPARISON

PREDICTED VS ACTUAL

Shot "PRISCILLA"

**SECRET**

**DEFINITION  
OF  
DAMAGE**

**LIGHT** - Damage which does not interfere with immediate military operations, but necessitates some repair to restore the item's complete military usefulness.

**MODERATE** - Damage which is sufficient to prevent any military use until some repairs are effected.

**SEVERE** - Damage whenever repair is essentially impossible without removal to a major repair facility.



**UNCLASSIFIED**

**UNCLASSIFIED**

Comparison Chart

EXERCISE DESERT ROCK VII and VIII

SHOT: Priscilla

ANTICIPATED YIELD: 40 KT

ACTUAL YIELD: 39 KT

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
1	Mortar, 81mm	300	45° dug in below surface	Severe	Severe	Weapon blown out of hole and blistered; tripod broken; Elevating knob bent.
2	Tank, M-24	345	45° dug in below surface	Severe	Severe	Turret blown 50 feet; tracks blown off; whole frame caved in.
3	Truck, 2½ ton	380	45° left dug in below surface	Severe	Severe	Twisted wreckage; tires blown off; laying on side; cab demolished.
4	Truck, 2½ ton flame thrower	515	Head on, surface	Severe	Severe	Demolished; scattered 100 yards.
5	Tank, M-4	600	Head on, surface	Moderate	Light	Tank displaced approximately 10 feet; paint scorched on GZ side and front; front fenders bent in. Tank reusable.
6	Tractor D-8, full track	602	Side on, surface	Severe	Severe	Tractor displaced 100 feet and tipped upside down; engine blown free of chassis; parts of tractor blown from 650 yd. marker to 900 yard marker.

16 UNCLASSIFIED

RESTRICTED DATA

~~SECRET~~  
~~UNCLASSIFIED~~

RESTRICTED DATA  
Act 1946

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
7	Crane, shovel	612	Side on, Surface	Severe	Severe	Main portion of crane assembly displaced approximately 50 feet; one track blown off; upper structure collapsed; cab blown into sections and displaced up to 400 yards; operator seat displaced 50 yards; main assembly toppled upside down; crane displaced in sections up to 200 yards to rear.
8	Guns, gas 5 gal	632	Side on, dug in below surface	Light	Light	Hole filled in; no noticeable damage.
9	Tank, No. 4	364	Side on, Surface	Severe	Severe	Turret blown 100 feet; tank turned upside down; track blown off.
10	Truck, 2½ ton	900	Side, surface	Severe	Severe	Track bed blown off and displaced approximately 300 yards to the rear; one wheel displaced 200 yards; one fender displaced 100 yards to the rear; one complete set of dual wheels and axle displaced 75 yards over a dike; chassis completely buckled and displaced 70 yards; engine blown from chassis and laying 10 feet from chassis.

~~UNCLASSIFIED~~

## UNCLASSIFIED

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
11	Machine gun, cal 30	902	Head on, surface	Moderate - light	Light	Barrel assembly displaced 75 yards to the rear; tripod displaced 75 yards to rear and one leg bent.
12	Truck, 1/4 ton	906	Side on, surface	Severe	Severe	Body displaced 150 yards to the rear; radiator and grill displaced 100 yards to the rear, engine displaced 125 yards; parts of body, engine and fenders displaced 250 yards to the rear; transfer case and one wheel displaced 100 yards.
13	Tank, M-24	912	Side on, Surface	Moderate	Moderate	Tank tipped upside down; damage to light metal full length of tank; no displacement apparent.
14	Machine gun, cal 30	915	Head on, dug in (parapet)	Light	Light	Blown back in hole; dirty.
15	Truck, 1/4 ton	922	Head on, dug in below surface	Light	Light	Hood open and bent; windshield bent back; hole filled with 2 feet of dirt.

UNCLASSIFIED

**UNCLASSIFIED**

REF ID: A1046

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
16	Carrier, M-29C	950	Side on, surface	Severe	Severe	Overturned and rolled; destroyed; blown about 75 yards.
17	Machine gun cal 50	1200	Head on, surface	Light	Light	Gun blown off tripod; tripod displaced 4 feet to rear of gun.
18	Trailer, 1 ton	1202	Side on, surface	Moderate	Light	Trailer displaced 10 feet to the rear; paint scorched on bed side facing GZ; cloth covering chains riddled.
19	Truck, 1/4 ton	1205	Side on, surface	Moderate	Moderate	Windshield blown out; back end pushed in; left front fender broken loose at seam and flared up; battery case blown out and laying near jeep; hood buckled; paint scratched on side; back end of jeep displaced about 105°; driver's seat burned.
20	Truck, $2\frac{1}{2}$ ton	1210	Side on, surface	Moderate	Moderate	Truck bed bent on GZ side; hood collapsed; windshield frame buckled; truck displaced 2 feet to the rear; tappet cover blown loose from studs; paint scorched on GZ side; tires darkened but not damaged.

**UNCLASSIFIED**

**UNCLASSIFIED**

RESTRICTED DATA  
Act 1946

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
21	Truck, 1/4 ton	1215	Side on, dug in below surface	Light	None	Dirty.
22	Truck, 3/4 ton	1225	Side on, dug in below surface	Moderate - Light	Light	Windshield smashed (no glass) and frame bent; hole filled with about $1\frac{1}{2}$ feet of dirt; hood dented.
23	Tank, M-24	1242	Head on, surface	Light	Very Light	Blistered paint.
24	Mannequin	1500	Face on, upright	Destroyed	Destroyed	Fatigue trousers shredded; 2x4 frame (T) broken off and displaced 4 feet to the rear; pistol belt, first aid packet and belt scorched; fatigue jacket shredded and displaced about 40 feet to the rear along with a 4 feet length of 2x4; helmet liner displaced approximately 55 feet to the rear.
25	Mortar, 81mm	1500	Head on, surface	Light	Light	Gun tipped over to the rear.
26	Tank, M-4	1508	Head on, surface	Light	Very Light	Paint scorched on GZ side; no apparent displacement.

**UNCLASSIFIED**

[REDACTED]

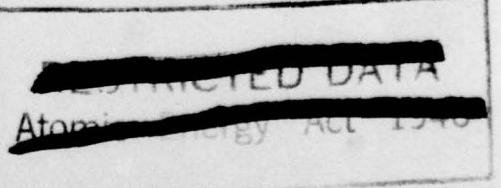
UNCLASSIFIED

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
32	Truck, 1/4 ton	2510	Side on, surface	Light	Very light	Paint scorched on GZ side; back rest and sides of both front seats scorched on GZ side; hole 6 inches in diameter burned on one seat edge nearest GZ; tires darkened on GZ side.
33	Mannequin	2515	Laying face down towards GZ surface	Singed	Singed	Light scorch on both shoulders and one hip pocket.
34	Mannequin	4250	Face on, upright	None	None	None.

22

UNCLASSIFIED

[REDACTED]



PRE-SHOT

and

POST-SHOT

PHOTOS

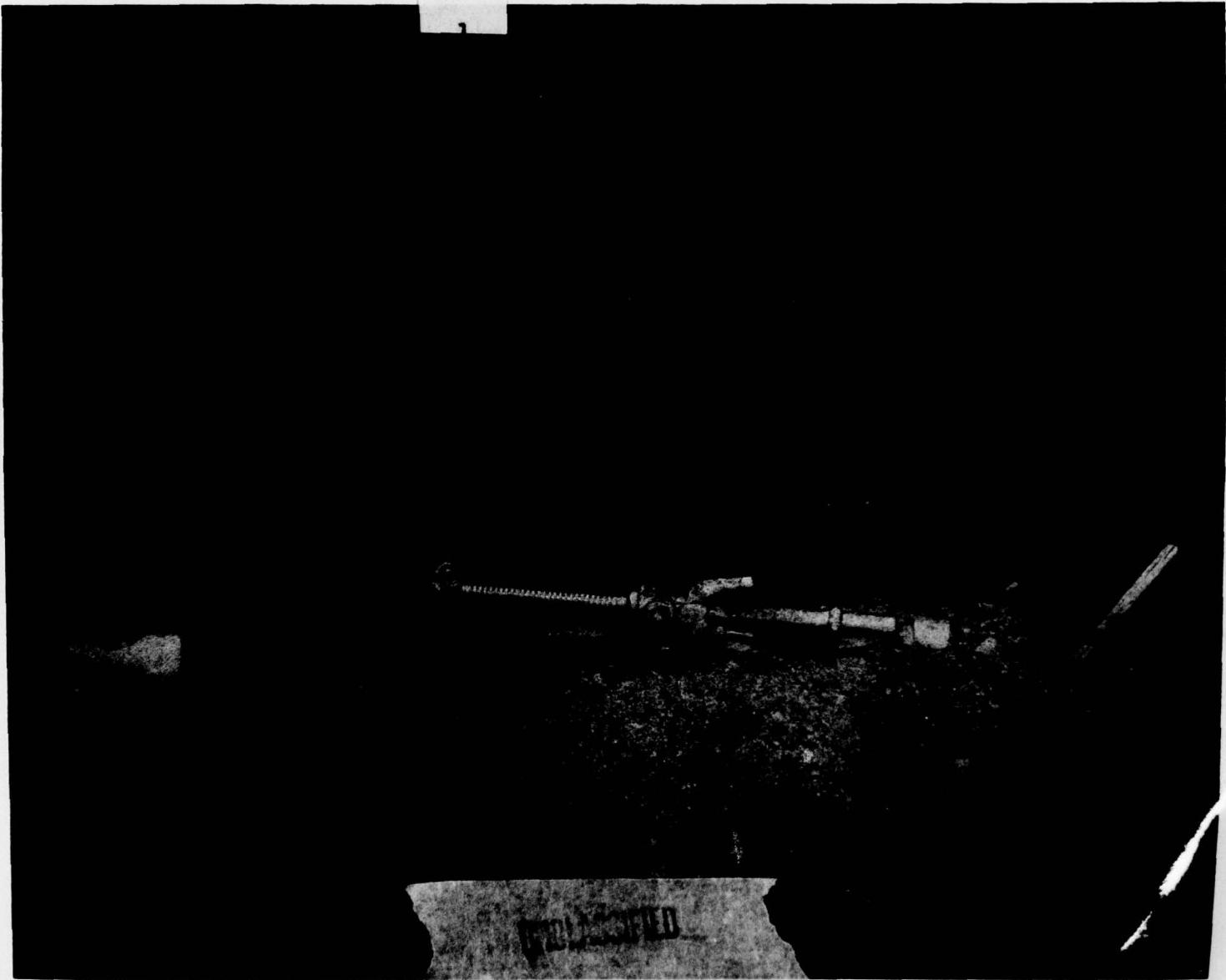
Shot "PRISCILLA"

AFTER

UNCLASSIFIED

UNCLASSIFIED

AFTER



DEPOSE

CLASSIFIED

UNCLASSIFIED



BEFORE

UNCLASSIFIED

UNCLASSIFIED

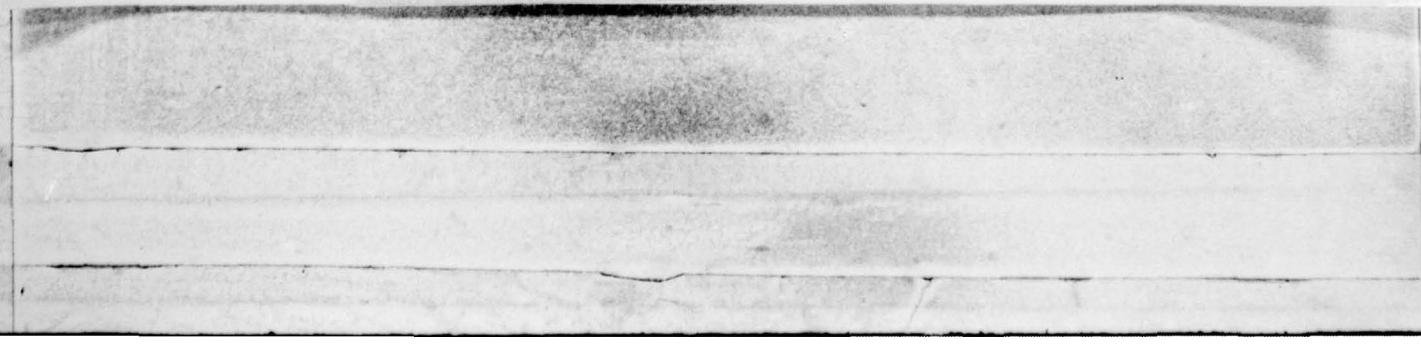
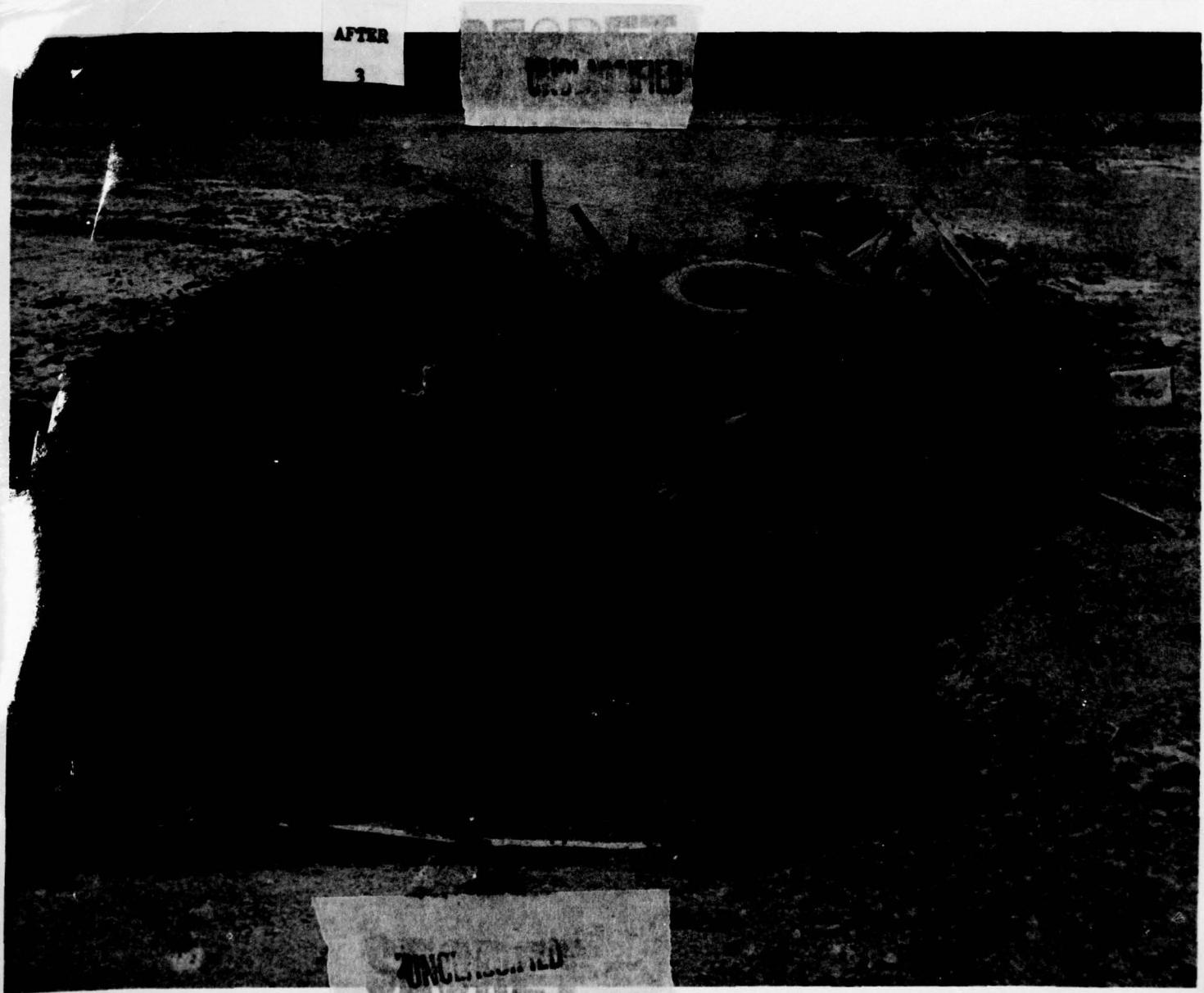
UNCLASSIFIED

AFTER

MISSV1000

MISSV1000





BEFORE

UNCLASSIFIED



~~SECRET~~

471359A5

6A 723 △

B 96

~~SECRET~~

AFTER

6

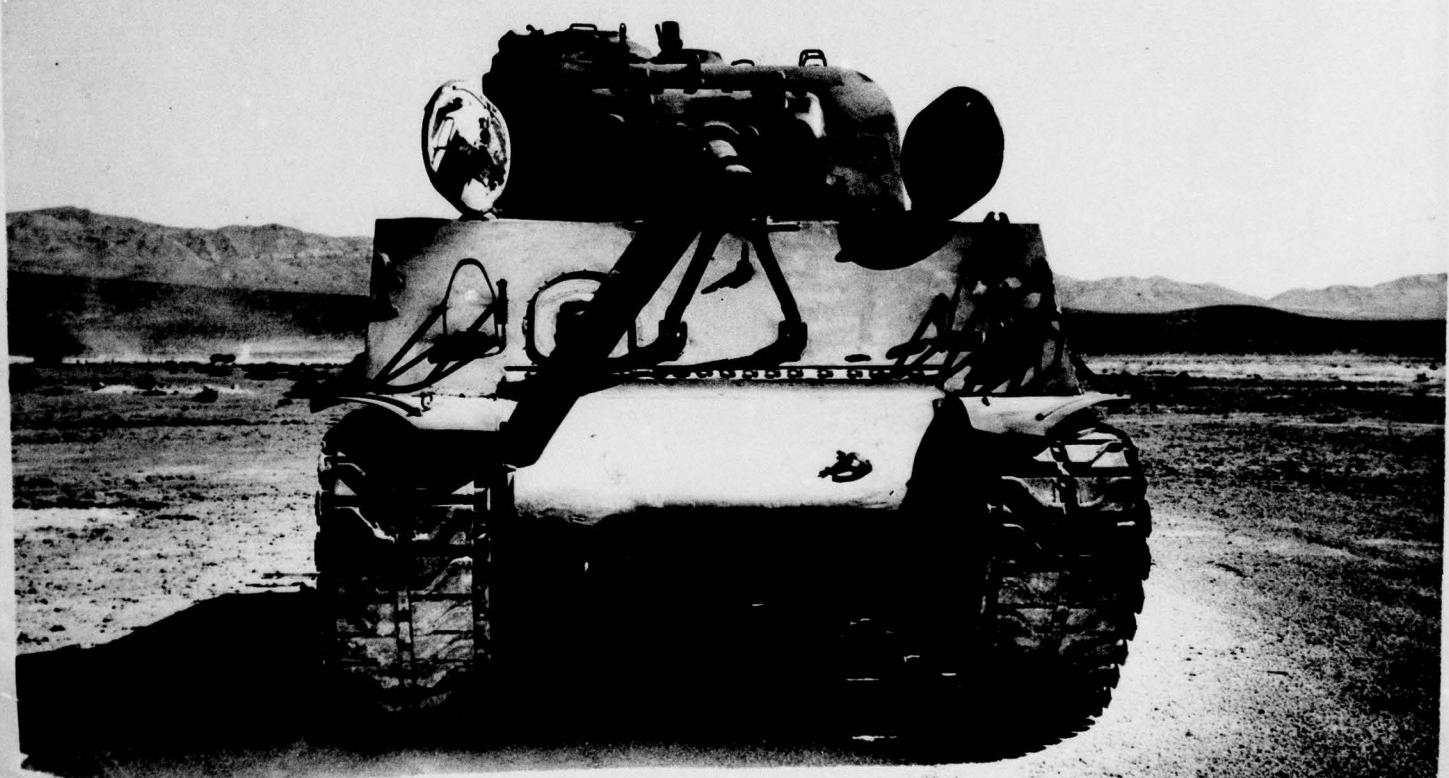




BEFORE

5

SECRET  
UNCLASSIFIED



SECRET

BEFORE

6

SECRET  
UNCLASSIFIED



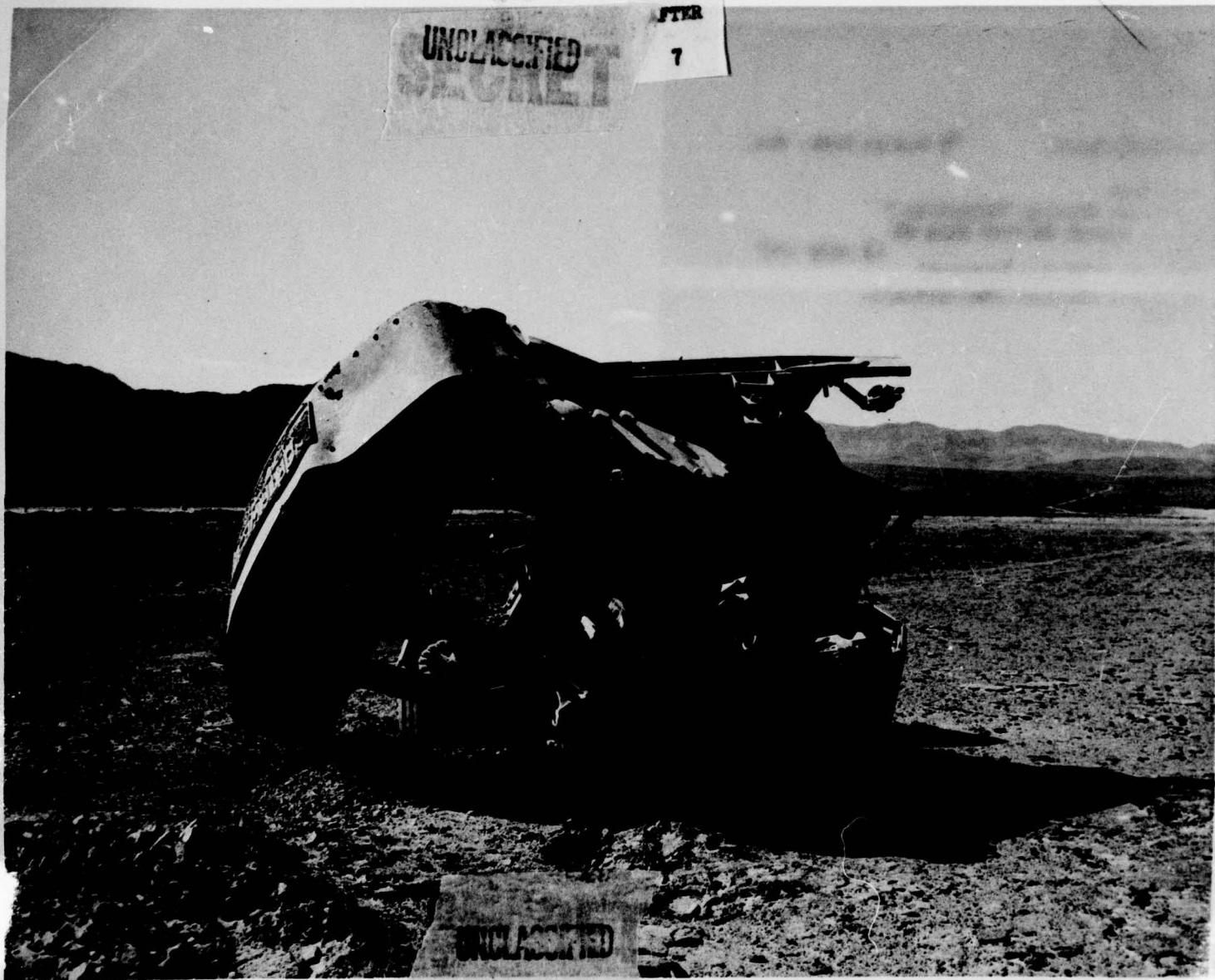
UNCLASSIFIED



UNCLASSIFIED

PTTB

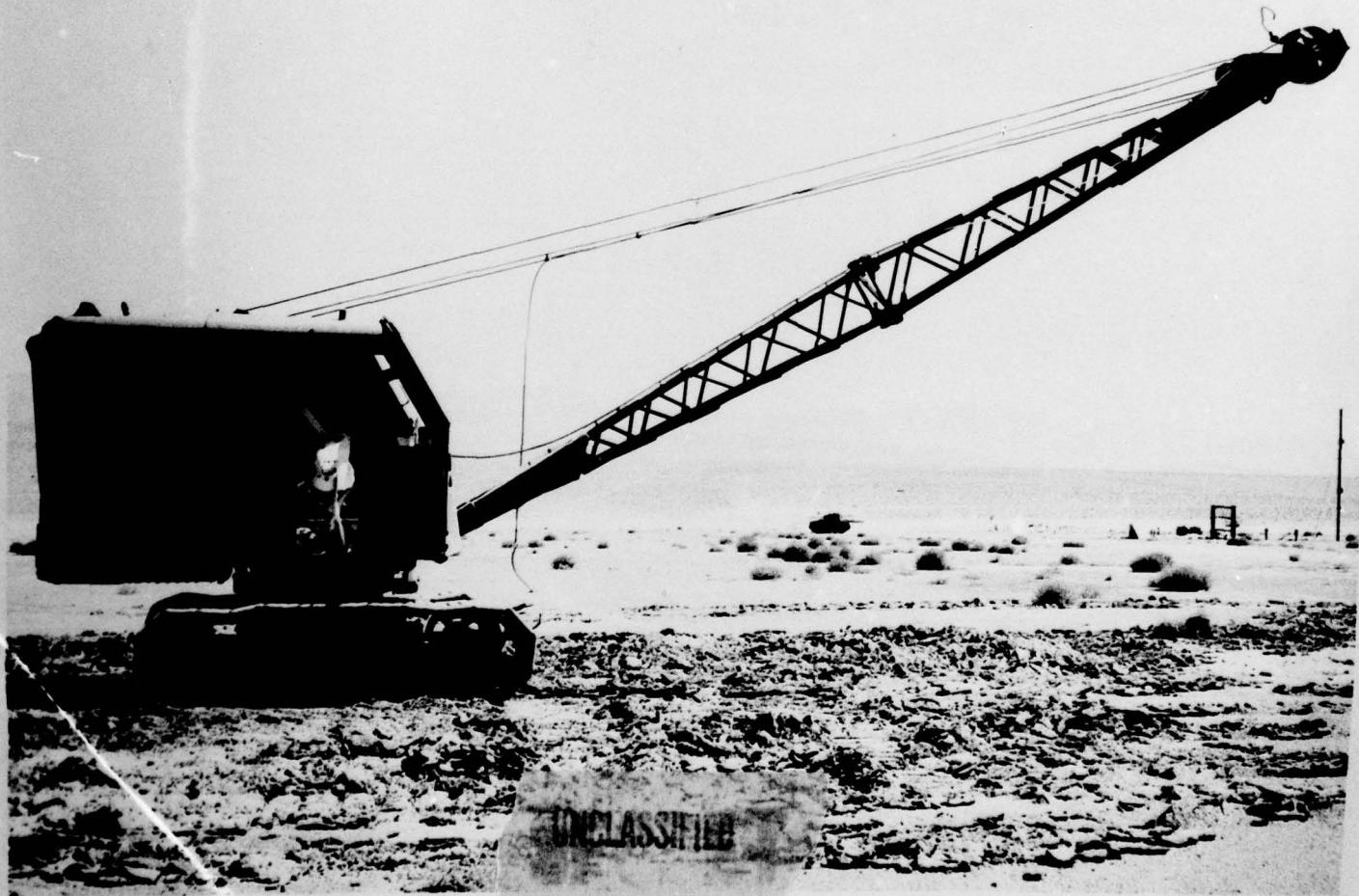
7



BEFORE

SECRET  
UNCLASSIFIED

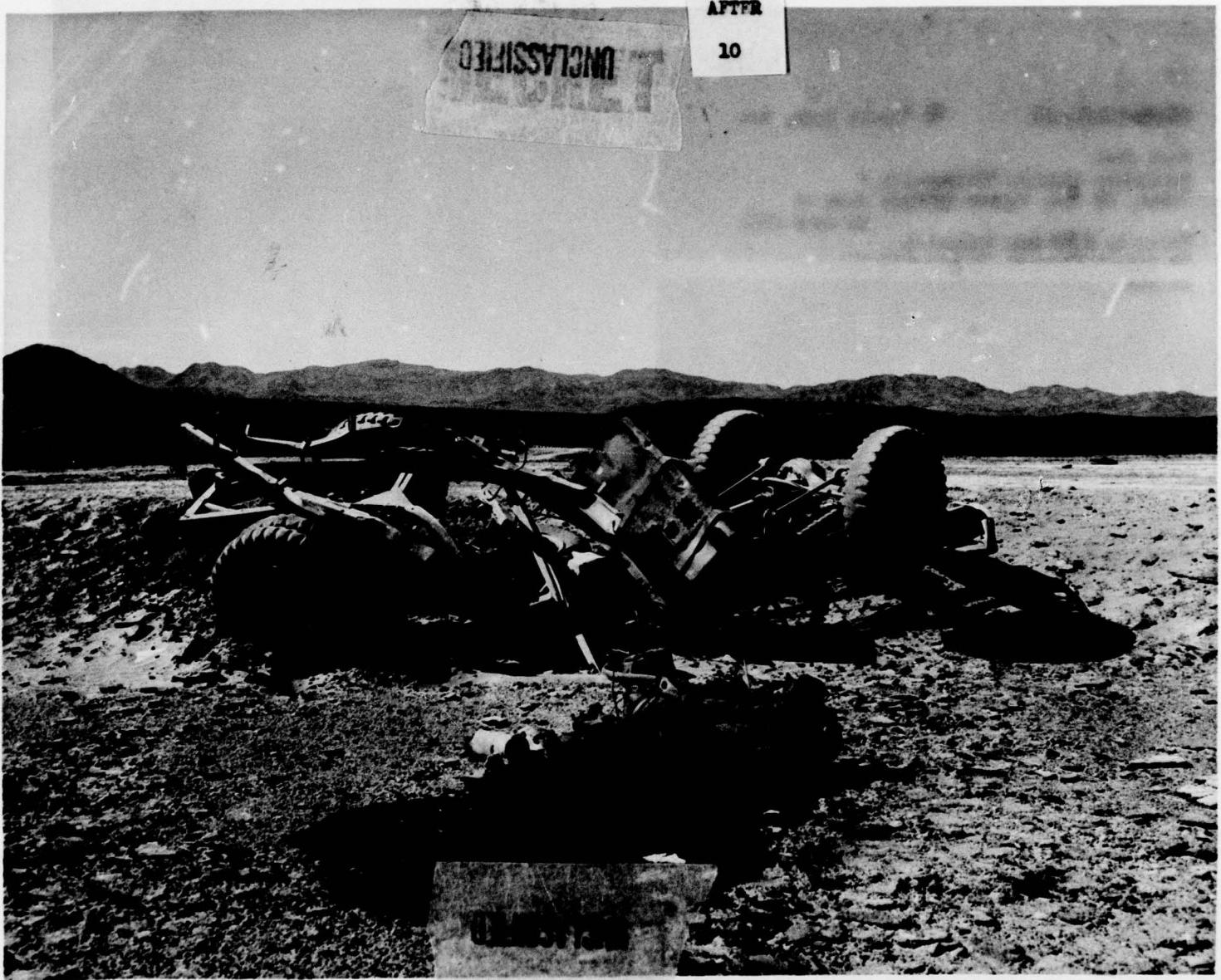
7



BEFORE

UNCLASSIFIED

UNCLASSIFIED



AFTER

10

AFTER

SECURITY  
UNCLASSIFIED

SECURITY  
UNCLASSIFIED

BEFORE

9

~~SECRET~~  
UNCLASSIFIED



~~UNCLASSIFIED~~

REF ID: A6512  
BEFORE

10

UNCLASSIFIED





AFTER

11

UNCLASSIFIED



REF ID: A65129  
UNCLASSIFIED

11

UNCLASSIFIED

5

BEFORE

12

UNCLASSIFIED



AFTER

14

UNCLASSIFIED

9-00%  
200

UNCLASSIFIED

AFTER

13

UNCLASSIFIED

UNCLASSIFIED

BEFORE

SECRET  
UNCLASSIFIED



SECRET  
UNCLASSIFIED

BEFORE

UNCLASSIFIED

14

UNCLASSIFIED

AFTER

16



UNCLASSIFIED

AFTER

15

C UNCLASSIFIED

UNCLASSIFIED

BEFORE

5

UNCLASSIFIED

SECRET

BEFORE

16

UNCLASSIFIED



UNCLASSIFIED

AFTER

18

UNCLASSIFIED

UNCLASSIFIED



BEFORE

17

UNCLASSIFIED  
SECRET



UNCLASSIFIED

BEFORE

18

~~SECRET~~  
UNCLASSIFIED



~~SECRET~~  
UNCLASSIFIED

AFTER

20

UNCLASSIFIED

1209/15Q

UNCLASSIFIED



BEFORE

19

~~SECRET~~  
UNCLASSIFIED



~~SECRET~~

BEFORE

20

UNCLASSIFIED

UNCLASSIFIED

APRIL

22

UNCLASSIFIED F

UNCLASSIFIED



AFTER

21

S UNCLASSIFIED

UNCLASSIFIED



BEFORE

21

UNSECRET

T-25

SECRET



BEFORE

22

UNCLASSIFIED

UNCLASSIFIED





AFTER

23

SECRET  
UNCLASSIFIED



UNCLASSIFIED

BEFORE

23

~~SECRET~~





AFTER

/26

STAGE  
UNCLASSIFIED



UNCLASSIFIED

AFTER

25

UNCLASSIFIED

0050

UNCLASSIFIED



BEFORE

26

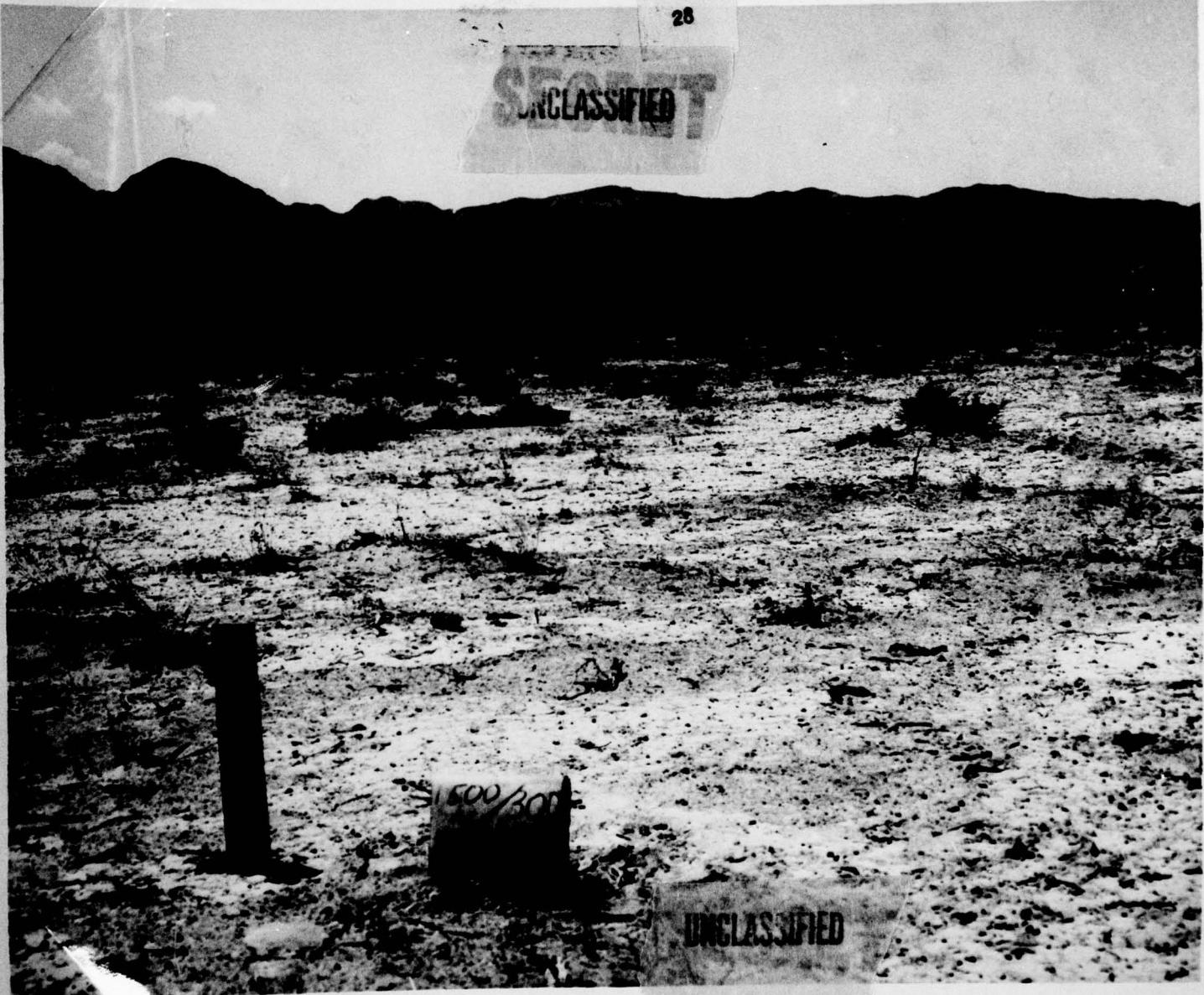
UNCLASSIFIED



AFTER

28

UNCLASSIFIED



AFTER

27

UNCLASSIFIED

UNCLASSIFIED



BEFORE

UNCLASSIFIED

27

UNCLASSIFIED



REF ID:

26

UNCLASSIFIED

AFTER

30

SECRET  
UNCLASSIFIED



SECRET  
UNCLASSIFIED

AFTER

26

SECRET  
UNCLASSIFIED



UNCLASSIFIED

BEFORE

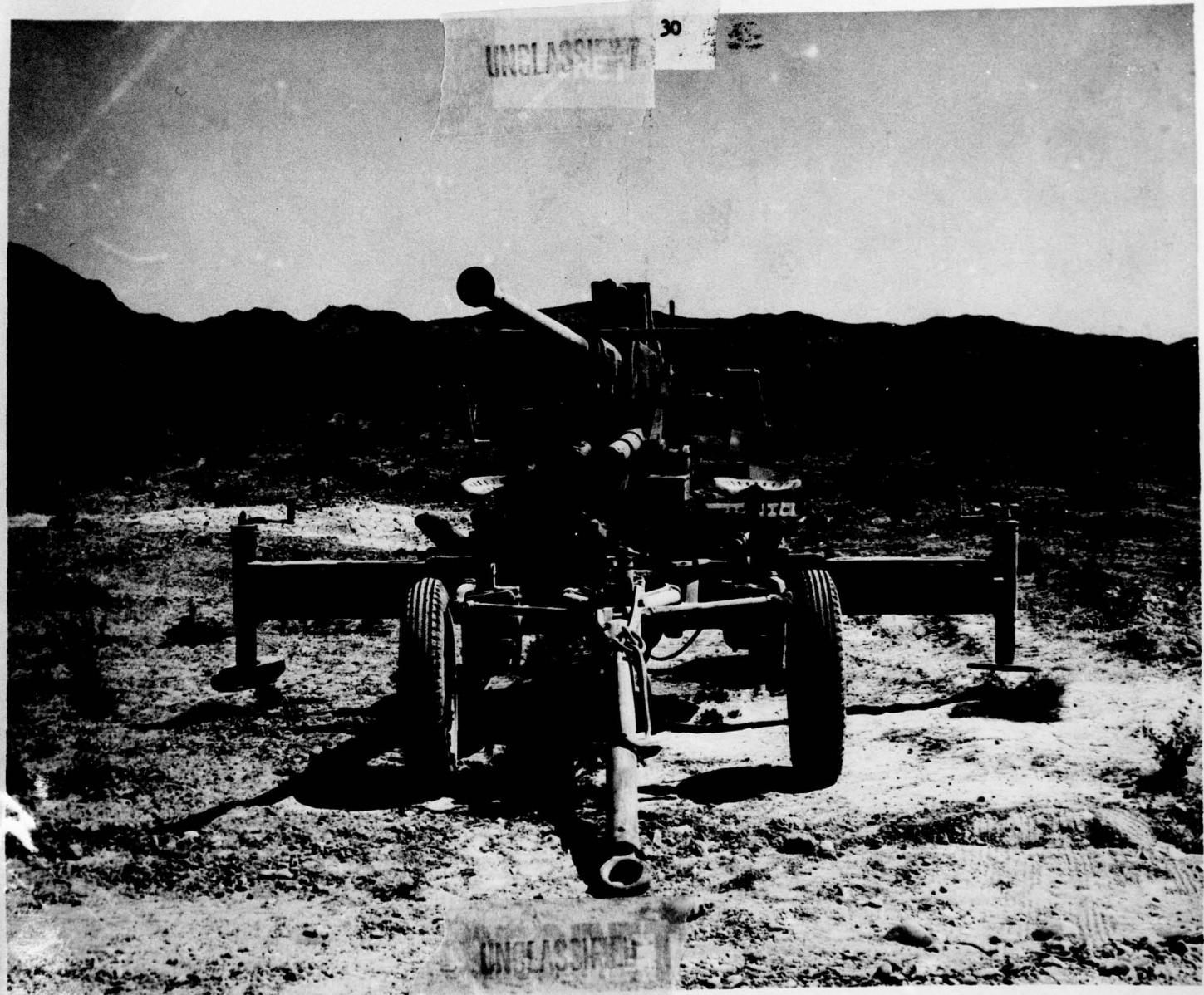
29

UNCLASSIFIED  
SECRET



UNCLASSIFIED

BEFORE



AFTER

32

SECRET  
UNCLASSIFIED



AD-A078 561 EXERCISE DESERT ROCK LAS VEGAS NV  
EXERCISE DESERT ROCK VII AND VIII. ANNEX L.(U)  
1957

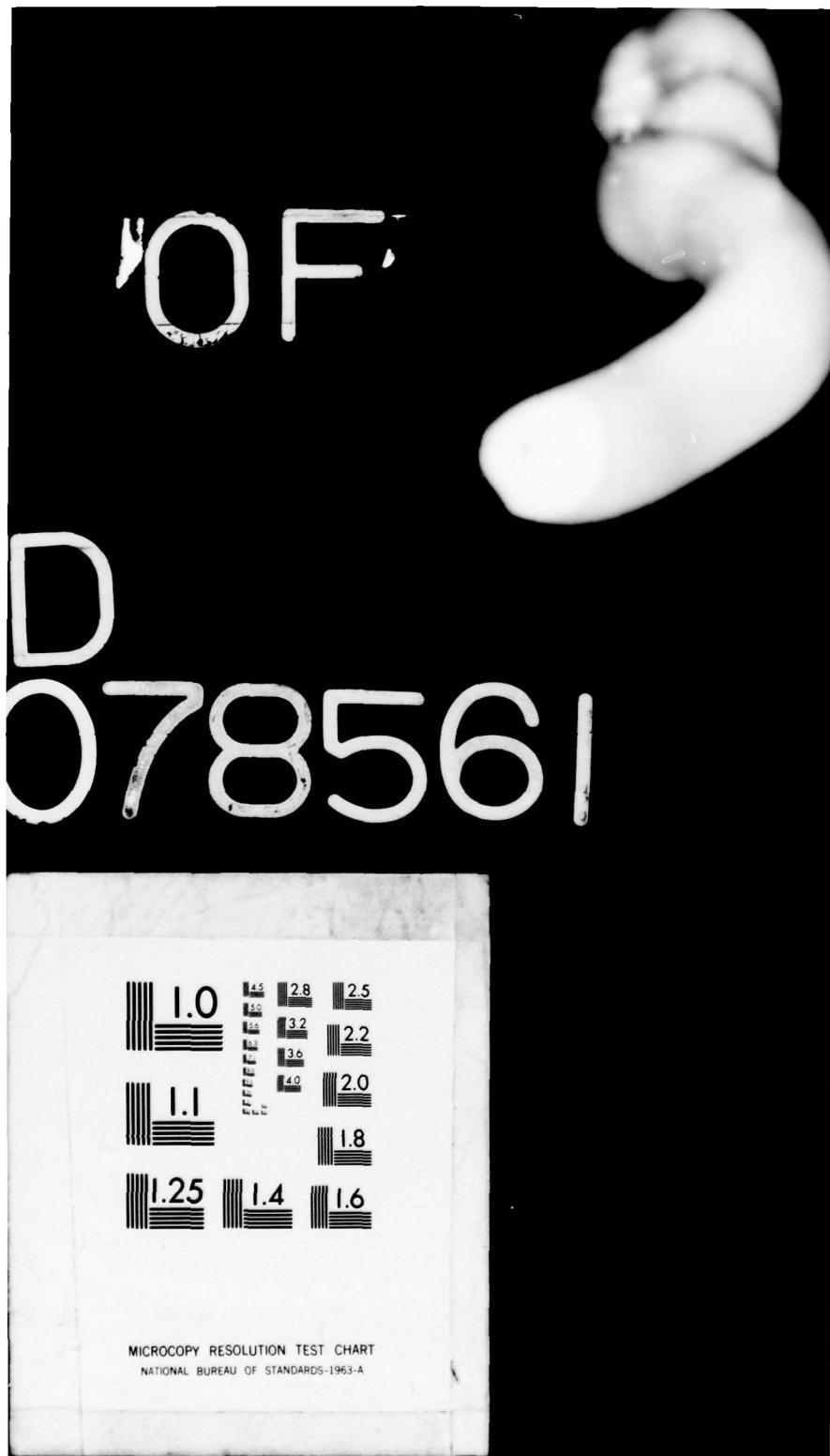
F/6 18/3

UNCLASSIFIED

NL

2 OF 3  
AD  
AD79561

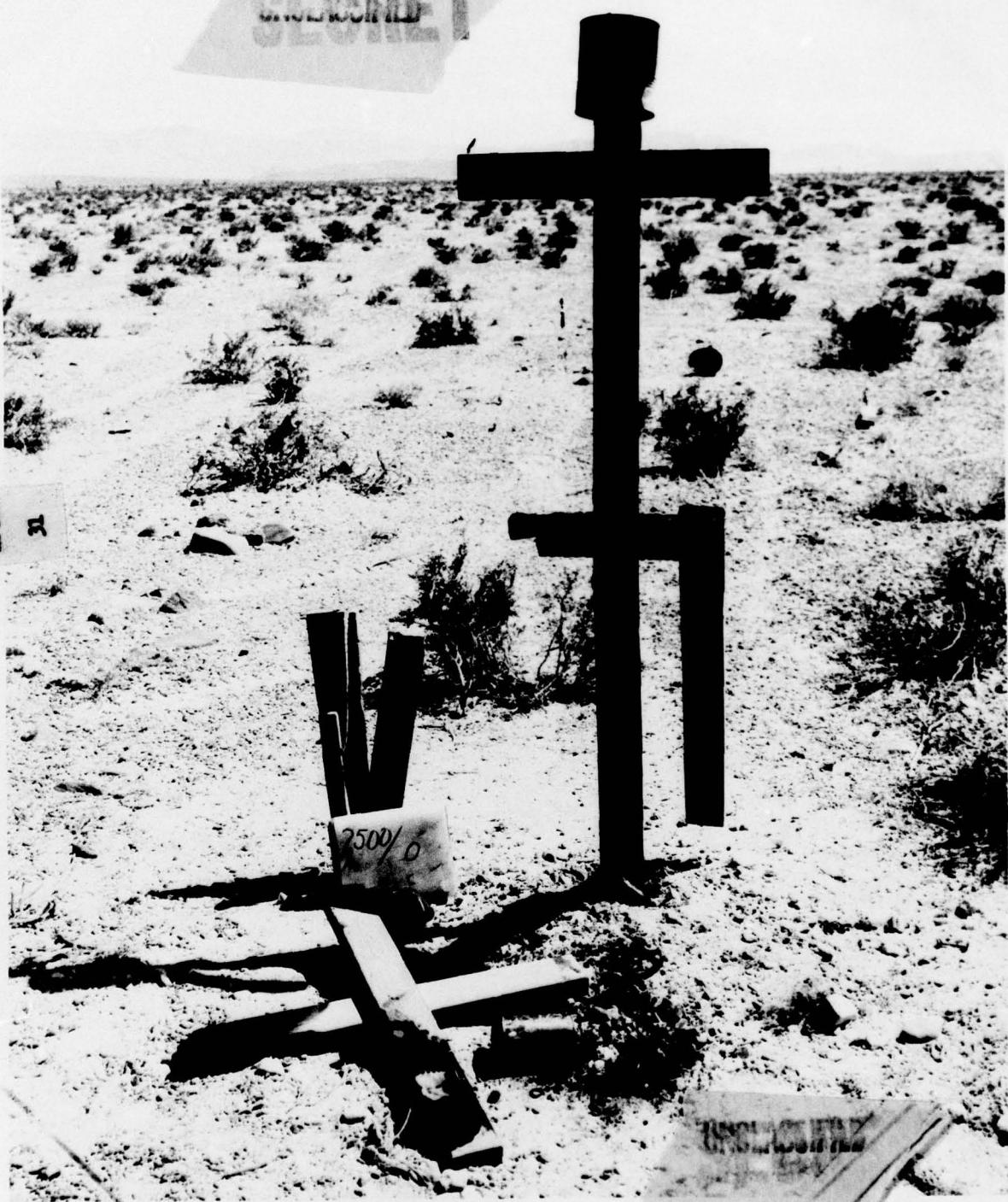




~~SECRET~~

AFTER

31





BEFORE

32

UNCLASSIFIED

20893935

UNCLASSIFIED



AFTER

AFTER

33

RECORD

2500/300

SECRET

BEFORE

33

UNCLASSIFIED

UNCLASSIFIED





BEFORE

21

UNCLASSIFIED

UNCLASSIFIED

~~SECRET~~  
Technical Considerations  
Shot "SMOKY"  
(Shot Day - 31 August 1957)

Design Yield - 45 KT

Actual Yield - 45 KT (Preliminary Report)

Ht of Burst - 700 Feet

Time of Burst - 0530 Hours

Temperature - 14° C

Air Density - 856 mb

Elevation - 5179 Above MSL (Burst Point)

Humidity - 31 Percent

*UNCLASSIFIED*

DYNAMIC PRESSURES

60 psi - 500 Yards

40 psi - 570 Yards

20 psi - 695 Yards

15 psi - 745 Yards

10 psi - 835 Yards

5 psi - 1030 Yards

2 psi - 1280 Yards

1 psi - 1550 Yards

THERMAL RADIATION

60 cal/cm<sup>2</sup> - 1300 Yards

40 cal/cm<sup>2</sup> - 1645 Yards

30 cal/cm<sup>2</sup> - 1865 Yards

20 cal/cm<sup>2</sup> - 2260 Yards

10 cal/cm<sup>2</sup> - 3090 Yards

5 cal/cm<sup>2</sup> - 4220 Yards

All computations to arrive at predicted damage was based on scaling laws and damage curves in TM 23-200, Capabilities of Atomic Weapons, exclusively.

*UNCLASSIFIED*

~~RESTRICTED~~

~~Atomic Energy Act 1946~~

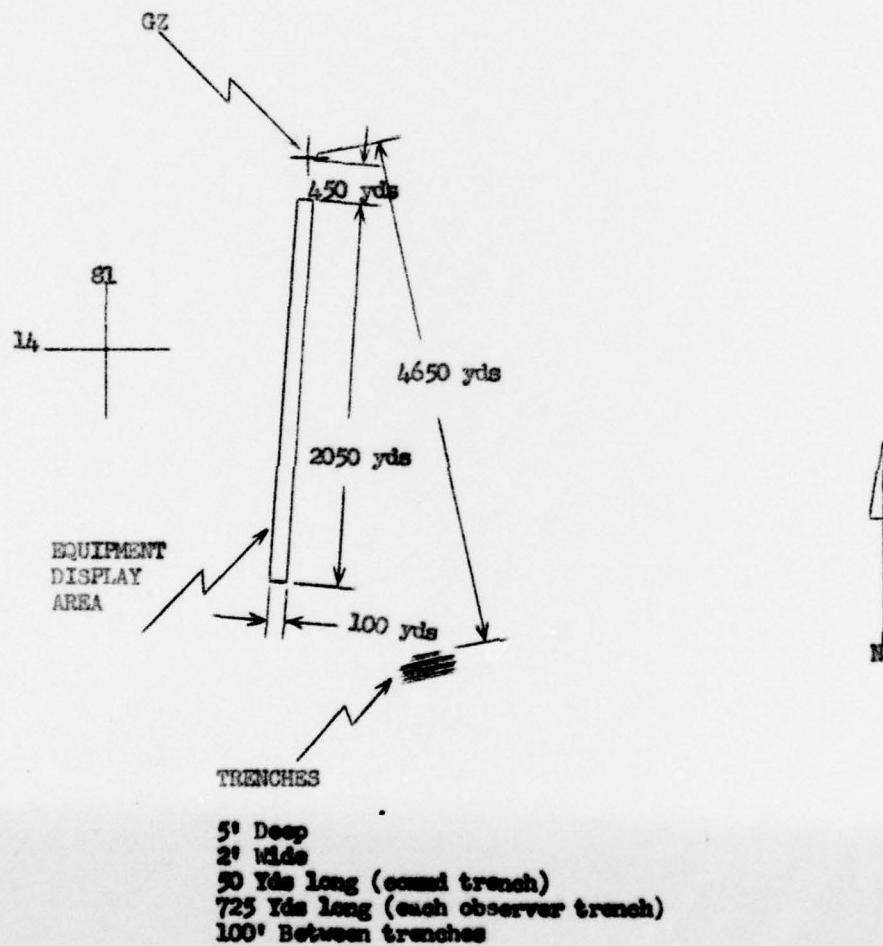
EQUIPMENT DISPLAY AREA

Shot "SMOKY"

83  
SMOKY

UNCLASSIFIED

Map: NEVADA, 1/50000  
FRENCHMAN LAKE  
Sheet



UNCLASSIFIED

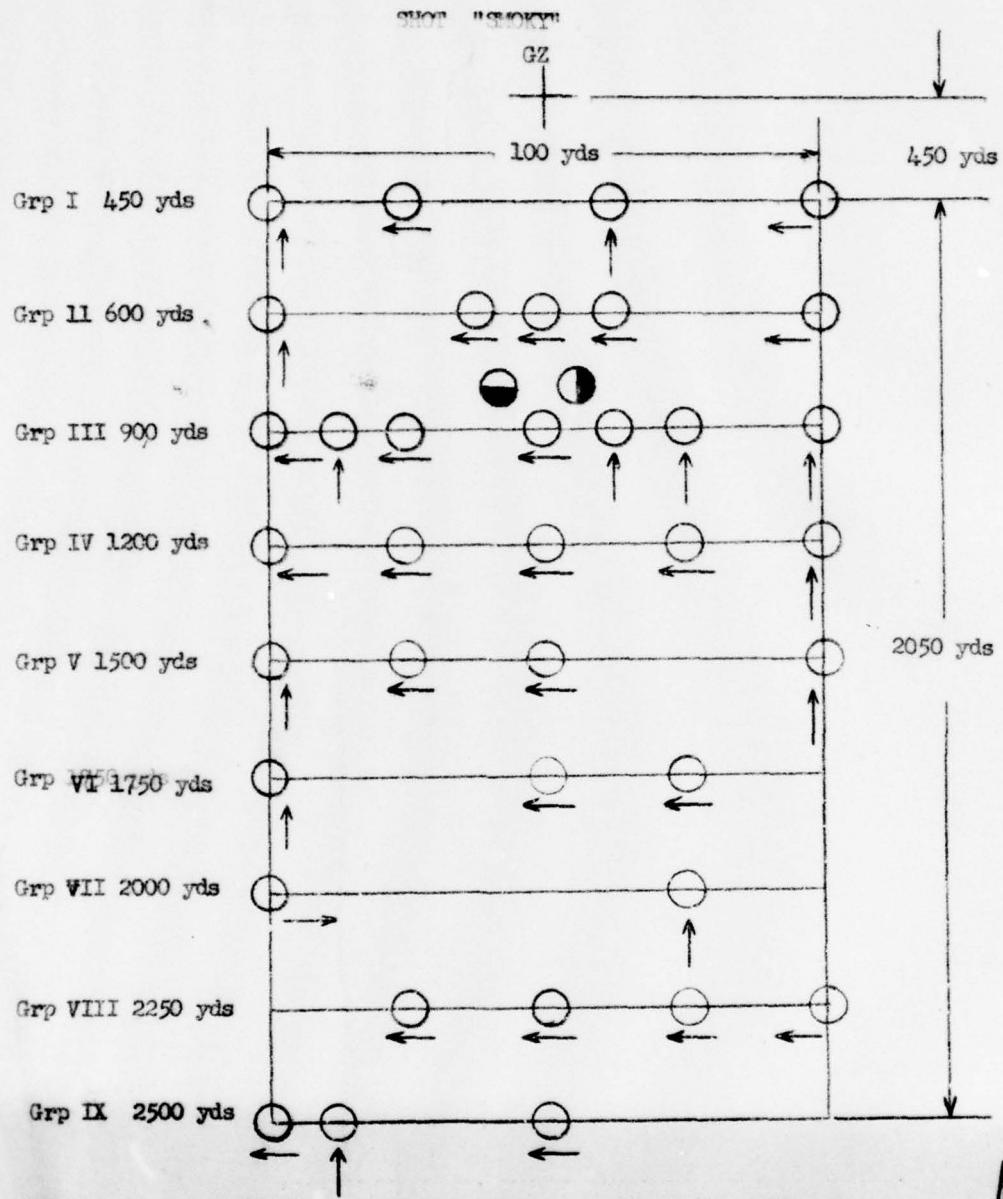
24

85

08

UNCLASSIFIED

EQUIPMENT DISPLAY AREA (ADMINISTRATIVE)



\*Includes only selected items of equipment evaluated in this report.

LEGEND:

- Item on display
- Unrevetted foxhole
- ◐ Revetted Foxhole
- ← Item facing side on 25
- ↑ Item facing head on

UNCLASSIFIED



**SECRET**

EQUIPMENT DISPLAY  
(Administrative)  
Shot "SMOKY"

<u>GRP</u>	<u>ITEM</u>	<u>YARDS FROM GZ</u>	<u>PREDICTED DAMAGE</u>	<u>ACTUAL DAMAGE</u>
I	Tank, M4	450	Severe	Moderate
	Gun, 57 MM	450	Severe	Severe
	Gun, 90 MM	450	Severe	Severe
	Tank, M24	450	Severe	Severe
II	Gun, 40 MM	600	Moderate	Severe
	MG, 50 Cal	600	Moderate	Severe
	Tractor, Engr	600	Severe	Severe
	Searchlight, w/Trl&Gen	600	Severe	Severe
	Sedan	600	Severe	Severe
III	Air Compressor	900	Severe	Severe
	Truck, 2½ Ton	900	Severe	Severe
	Truck, 2½ Ton	900	Severe	Severe
	Trailer, Water	900	Severe	Severe
	Steam, Cleaner	900	Severe	Severe
	Truck, ½ Ton	900	Severe	Severe
	Tank, M4	900	Light	Light
	Foxhole, unrevetted w/	885	Collapse/Destroy	Light/Destroy
	Mannequin Standing			
	Foxhole, revetted w/	885	No Damage	Light/No Damage
	Mannequin Sitting			
IV	Tank, M24	1200	Light	Light
	Truck, 1½ Ton	1200	Moderate	Severe
	55 Gal Drum (10)	1200	Light	Light
	MG 30 Cal	1200	Light	Light
	Water Softener w/	1200	Moderate	Moderate
	Tank			
V	Mannequin (Prone)	1500	Singed	Singed
	Generator, (Small)	1500	Light	Moderate
	Sedan	1500	Moderate	Severe
	Mannequin, (Standing)	1500	Destroyed	Destroyed
VI	Truck, 1½ Ton	1750	Light	Light
	MG, 50 Cal	1750	Light	Light
	Truck, ½ Ton	1750	Light	Light
VII	Sedan	2000	Light	Light
	Truck, 1½ Ton	2000	Light	Light
VIII	Truck, 2½ Ton	2250	Light	Light
	Cans, 5 Gal full	2250	Light	None
	Generator, (Large)	2250	Light	Light
	Truck, ½ Ton	2250	Light	Light
IX	Sedan	2500	Light	Light
	Panel, Cloth	2500	Destroyed	Destroyed
	Tent, Sqd w/QM & Sig Eq.	2500	Severe	Severe

UNCLASSIFIED

Atomic Energy Act

**SECRET**

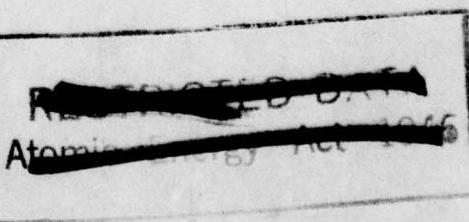
EQUIPMENT DISPLAY (Tactical)  
Shot "Smoky"

SITE	ITEM	YARDS FROM GZ	PREDICTED DAMAGE	ACTUAL DAMAGE
2.	Tank, M4	575	Moderate	Light
3.	Gun, 57 MM (AT)	825	Light	Light
4.	Gun, 57MM (AT) Searchlight w/Trl Truck, $\frac{1}{2}$ Ton Generator, Trl Mtd Truck, $\frac{3}{4}$ Ton	850 850 850 850 850	Light Moderate Light Light Light	Light Severe Severe Light Severe
5.	Tank, M4	650	Moderate	Light
6.	Howitzer, 75MM Pack	700	Moderate	Moderate
7.	Truck, $\frac{1}{2}$ Ton Truck, $\frac{1}{2}$ Ton	850 850	Moderate Moderate	Moderate Moderate
10.	Sedan	950	Moderate	Severe
11.	Carrier, M29C	1375	Light	Light
12.	Truck, $\frac{1}{2}$ Ton w/Radio Truck, $\frac{1}{2}$ Ton	1475 1475	None None	Light Light
14.	LVT, Marine	850	Light	Moderate
16.	Gun, 57MM (AT)	1150	Light	None
17.	MG, 30 Cal Commo Equip Radio and Telephone Rearil Rifle 106 MM w/mannequin	1150 1150 1150	Light Light Light/Destroy	Light Moderate Light/Destroy
20.	BAR	1475	None	None
21.	Gun, 57MM (AT)	1550	None	None
22.	Truck, $\frac{1}{2}$ Ton	1850	None	Light
24.	Tank, M4 w/Mannequin	1125	Light/Destroy	None/Destroy
25.	Tank, M4S w/Mannequin	1575	None/Destroyed	Light/Destroyed
27.	Mortar, 82MM	2050	None	None

28

**SECRET**

UNCLASSIFIED



**SECRET**

"SMOKY"

and

**Equipment Display Area**

(Line of Vehicles near GZ is not part of display.  
They are buses which transported Observers to the  
display area.)

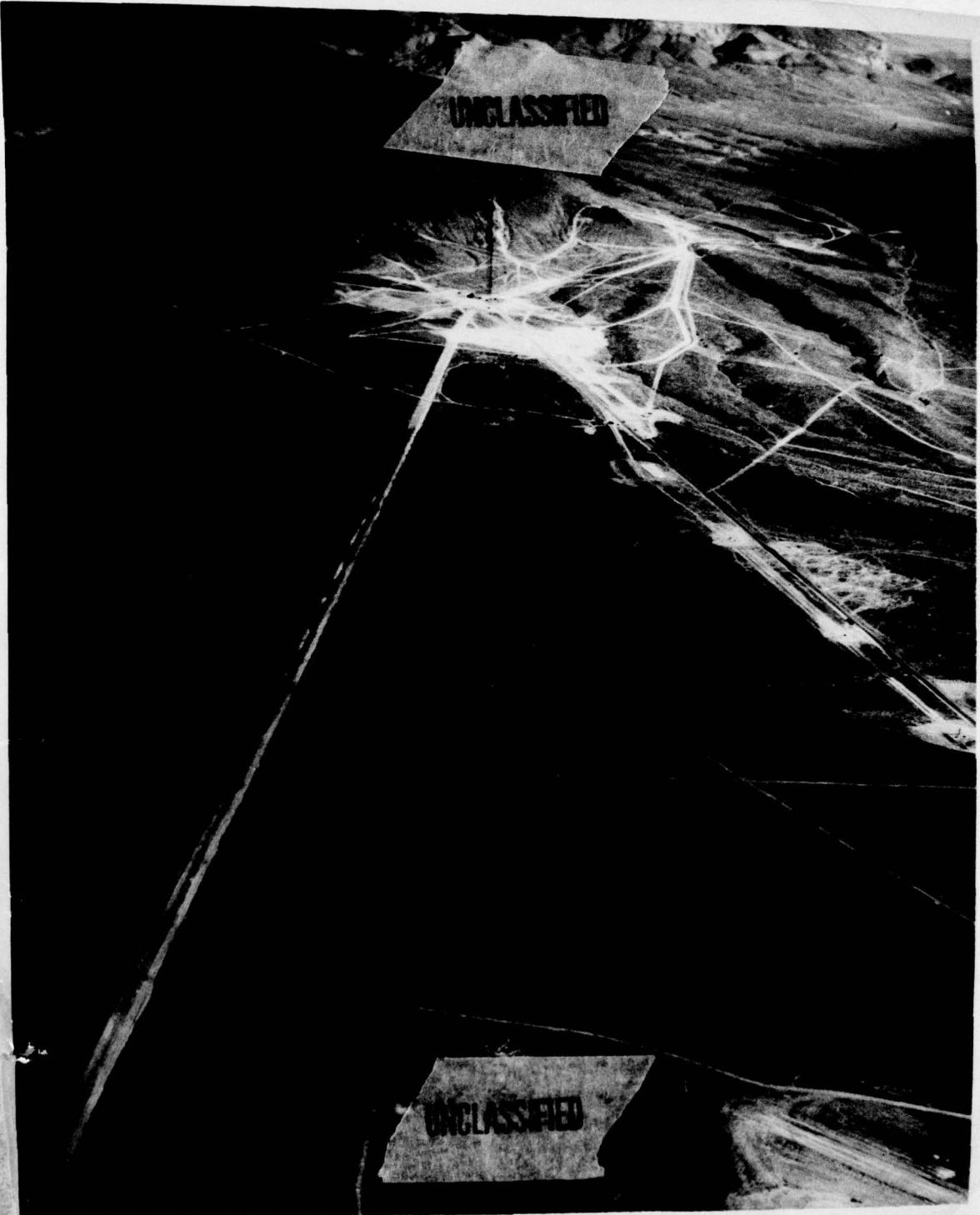
29

**UNCLASSIFIED**

**SECRET**

SEPARATE

SEND WHEN  
RECEIVED



**DAMAGE COMPARISON**

Predicted vs Actual

Shot "SMOKY"

**UNCLASSIFIED**

**DEFINITION  
OF  
DAMAGE**

**LIGHT** - Damage which does not interfere with immediate military operations, but necessitates some repair to restore the item to complete military usefulness.

**MODERATE** - Damage which is sufficient to prevent any military use until some repairs are effected.

**SEVERE** - Damage whenever repair is essentially impossible without removal to a major repair facility.

**UNCLASSIFIED**

31

**Atomics Energy Act 1946**

UNCLASSIFIED

EXERCISE DESERT ROCK-VII and VIII

RESTRICTED DATA

SHOT: Shaky

ANTICIPATED YIELD: 45 KT

ACTUAL YIELD: 45 KT

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
1	Tank, M-4	450	Head on, surface	Severe	Moderate	Tube blown off turret; tank displaced about 40 feet; tank appeared intact otherwise.
2	Gun, 57mm	450	Side on, surface	Severe	Severe	Wheels and operating handles blown off; one spade bent out of position; displaced 45 yards.
3	Gun, 90mm	450	Head on, surface	Severe	Severe	Destroyed; one wheel missing - remaining torn apart; outrigger leg blown off and the other distorted; displaced 100 yards; tube and part of mechanism displaced 50 yards further away from carriage.
4	Tank, M-24	450	Side on, surface	Severe	Severe	Track blown off and found in 4 parts within a 50 yard radius; tank overturned; bogie wheel bent out of line; drive sprocket bent out of line; tank turret blown off and displaced 100 yards from tank; gun tube torn loose from turret and laying 20 yards away; tank displaced 15 yards.
5	Machine gun, cal 50	600	Side on, surface	Severe	Severe	Torn apart; cradle found 100 yards away in original position.

UNCLASSIFIED

UNCLASSIFIED

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
6	Tractor, Engineer full track	600	Side on, surface	Severe	Severe	Tractor tipped upside down; blade torn off; hydraulic system torn apart; track broken in pieces; tractor displaced 10 yards.
7	Gun, 40mm	600	Head on, surface	Moderate	Severe	Torn apart and scattered; wheels ripped off main carriage; barrel not located; portions of gun displaced 90 yards
8	Search Light w/trailer and generator	600	Side on, surface	Severe	Severe	Torn completely apart; scattered over a 50 yard radius; generator engine and armature laying 40 yards from initial point; trailer less wheels found 100 yards from initial point completely destroyed.
9	Sedan, 5 pass- enger	600	Side on, surface	Severe	Severe	Completely blown apart and scattered throughout the area.
10	Air com- pressor, portable	900	Side on, surface	Severe	Severe	Only tank located; controls completely torn off or extensively damaged; displaced 100 yards.
11	Truck, 2½ ton Commer- cial	900	Head on, surface	Severe	Severe	Cab crushed in as if an object had hit it as well as by blast; paint blistered; carburetor air cleaner gone; wiring and distributor melted; displaced 80 yards.

UNCLASSIFIED

[REDACTED]

UNCLASSIFIED

[REDACTED]

[REDACTED]

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
17	Foxhole, revetted, w/manne- quin sitting	885	Head on	None	Light- None	Sand bags burned on top and blackened up to 3 feet deep inside; a little dirt fell in from burned sand bags on side away from GZ; mannequin in good condition.
18	Foxhole, unrevetted w/manne- quin Standing	885	Head on	Collapsed/ destroyed	Light/ destroyed	Parapet dirt on GZ side blown into foxhole; mannequin burned from thermal and tattered from blast; no helmet left, only the tin can with many dents on GZ side - apparently free gravel being thrown; 2x4 scorched on GZ side.
19	Bank, M-24	1200	Side on, surface	Light	Light	Paint scorched on GZ side.
20	Truck, 2½ ton, Commer- cial	1200	Side on, surface	Moderate	Severe	Some decking off bed of truck; stakes missing; cab crushed in in places; windows blown out; hood missing; badly scorched on GZ side; displaced 35 yards; muffler and exhaust blown off; frame distorted.
21	Drums, 55 gal (10) Filled	1200	Upright, surface	Light	Light	Nine drums scattered within a 15 yard radius; one located 100 yards from original position; dents in all drums - no leakage.

[REDACTED]

UNCLASSIFIED

[REDACTED]

UNCLASSIFIED

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
22	Machine gun, cal 30	1200	Side on, surface	Light	Light	Triped displaced 20 yards and disconnected from gun; barrel and mechanism appeared in good condition except for a little scorching.
23	Tanks, water softener	1200	Upright, surface	Moderate	Moderate	Tanks scattered and dented; pipe connections broken off.
24	Mannequin	1500	Head on, face down, surface	Singed	Singed	Helmet blown 2 yards away; left shoulder of shirt burned; right shoulder of shirt scorched and shredded; canteen cover ripped a little from blast also scorched; web belt blackened; left hip of trousers slightly burned and appeared ripped a little from blast effects.
25	Generator, Skid mounted	1500	Side on, surface	Light	Moderate	Displaced 5 yards; paint scorched on GZ side; side panels dented on GZ side; panel board loose; engine breather hose off; wiring for distributor burned and laying along side of unit.

[REDACTED]

UNCLASSIFIED

[REDACTED]

**UNCLASSIFIED**

**RESTRICTED DATA**  
A [REDACTED] 1946

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
26	Sedan, 5 passenger	1500	Side on, surface	Moderate	Severe	Vehicle tipped upside down; displaced 5 yards; all windows blown out; top crushed in; hood crushed in; paint blistered.
27	Mannequin	1500	Upright, head on, surface	Destroyed	Destroyed	Fatigues tattered and blown apart; 24 scorched; face piece to gas mask showed signs of heat but was not burned; displaced up to 50 yards in all directions away from blast; helmet blackened on front side; web belt blackened and shredded from blast; first aid pouch shredded.
28	Truck, 1½ ton Commercial	1750	Hood on, surface	Light	Light	Paint blistered; seat blown out; cab crushed slightly; stakes blown off; truck displaced 3 yards; windshield and right door window blown out; exhaust pipe hanging down.
29	Machine gun, cal 50	1750	Side on, surface	Light	Light	Tipped over sideways; a little blistering of exterior.
30	Truck, 1/4 ton	1750	Side on, surface	Light	Light	Tipped over sideways; blackened; windshield blown off with frame about 75 yards away.

**UNCLASSIFIED**

[REDACTED]

UNCLASSIFIED

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
31	Truck, $\frac{1}{4}$ ton, com- mercial	2000	Head on, surface	Light	Light	Dented top and door on GZ side; hood blown open.
32	Sedan, 5 pass- enger	2000	Side on	Light	Light	Rear glass shattered; top dented; paint on GZ side blistered; back end displaced 1 yard.
33	Truck, $\frac{1}{2}$ ton, com- mercial	2250	Side on, surface	Light	Light	Paint scorched, GZ door blown open and glass shattered; stakes on GZ side bent inward; hood blown off.
34	Cans, gas, 5 gal	2250	Edge on, surface	Light	None	Cans tipped over.
35	Generator, large, skid mounted	2250	Side on, surface	Light	Light	Door on GZ side dented; paint scorched.
36	Truck, $\frac{1}{4}$ ton	2250	Side on, surface	Light	Light	Hood blown open; paint scorched; seats scorched and one corner burned.

[REDACTED]

Atmos

UNCLASSIFIED

~~REF~~  
~~REF~~  
UNCLASSIFIED

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
27	Sedan, 5 passenger	2500	Head on, surface	Light	Light	Windshield shattered; paint blistered; top dented.
38	Panel, cloth	2500	Head on, surface	Destroyed	Destroyed	Shredded; scorched; frame broken; about 1/2 of cloth left.
39	Tent, quad, GM, and signal equip.	2500	Side on, Surface	Severe	Severe	Tent blown 100 feet from stakes; evidence of burning and shredding; sets spot burned and blown 50 feet; duplicating machine burned and melted; gas cans slightly scorched; commo equip scorched; canvas covers scorched; (Little fires within tent area was sufficient in most cases to severely damage all equipment except bales, cans and drums.)
40	Tank, M-4	575	Side on, partial defilede	Moderate	Light	Top hatch blown off; displaced slightly; paint burned.
41	Gun, 57mm (AT)	825	Side on, surface	Light	Light	One shield blown off; paint blistered; turned around.

~~REF~~  
~~REF~~  
UNCLASSIFIED

REF ID: A245  
REF ID: A245

UNCLASSIFIED

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
42	Truck, 3/4 ton	650	Side on, surface	Light	Severe	Blown 25 yards; frame and body bent and twisted; paint blistered.
43	Generator, trailer mounted	650	Side on, surface	Light	Light	Tipped over; paint blistered.
44	Truck, 1/2 ton	650	Side on, partial defilede	Light	Severe	Demolished.
45	Search- light, trailer mounted	650	Side on, partial defilede	Moderate	Severe	Tripped off trailer; light twisted and torn apart; trailer suffered light damage.
46	Gun, 57mm (AT)	650	Side on, partial defilede	Light	Light	Turned around in place; paint blistered; one half of shield blown off.
47	Tank, M-4	650	Side on, surface	Moderate	Light	Paint blistered; fenders dented; displaced 25 feet.
48	Howitzer, 75mm, pack	700	Side on, surface	Moderate	Moderate	Paint blistered; tipped over; carriage out of alignment.

UNCLASSIFIED

Atom. Act. 1946

**UNCLASSIFIED**

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
49	Truck, 1/4 ton	850	Side on,	Moderate	Moderate	Glass shattered; hood blown open; paint scorched and blistered; top frame bent and burned.
50	Truck, 1½ Ton	850	Side on	Moderate	Severe	Displaced 25 yds and turned around; glass shattered; hood and bed stakes blown off.
51	Sedan, 5 passenger 950	850	Side on	Moderate	Severe	Frame and body twisted and tangled; displaced 25 yards, hood twisted and mangled.
52	Carries M 290	1375	Side on	Light	Light	Paint scorched on GZ side, displaced about 2 feet, few dents in frame.
53	Truck, 1 1/2 ton w/radio	1475	Side on,	None	Light	Windshield shattered; hood blown open; radio dislodged but still on mount.
54	Truck, 1 1/2 ton Commercial	1475	Side on,	None	Light	Glass shattered; hood blown off; door and bed bent.
55	LVT, Marine	850	Side on,	Light	Moderate	Track blown off, follow 50 yards; hatches and doors blown off.

**UNCLASSIFIED**

**NOTED DATA**

**UNCLASSIFIED**

42

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
56	Gun, 57 mm (AT)	1150	Side on, dug in tactically	Light	None	Paint scorched; trails half buried with dirt.
57	Machine Gun, 30 Cal	1150	Side on, dug in tactically	Light	Light	Paint blistered; rear sight bent; tripod blown 50 feet, gun blown 10 feet.
58	Commo Equip	1150	Side-on	Light	Moderate	Radio: Microphone shattered; dial broken; radio blown into hole. Tele- phones: no visible damage; blown into hole.
59	106 mm Recoilless Rifle w/ Mannequin	1150	Side on, dug in tactically	Light/ destroyed	Light/ destroyed	Mannequin moved to the right; paint scorched; mannequin disintegrated; bits of cloth noticed 10 to 50 yards from original position.
60	B.A.R.	1475	Side on, dug in tactically	None	None	Displaced 3 feet.
61	Gun, 57mm (AT)	1550	Side on, dug in tactically	None	None	Paint scorched.
62	Truck, 1/2 ton	1850	Side on, partial defilade	None	Light	Paint scorched; seat scorched; hood blown open and bent.

**UNCLASSIFIED**

**UNCLASSIFIED**

PHOTO REF. NR.	ITEM	DISTANCE From GZ (Yards)	ORIENTATION & PROTECTION	DAMAGE CLASSIFICATION		DESCRIPTION OF ACTUAL DAMAGES
				PREDICTED	ACTUAL	
63	Tank M4, w/mannequin man, stand- ing in dri- vers hatch	1125	Side on, hull defilade	Light/ destroyed	Light/ destroyed	Paint on tank scorched; mannequin blown out of hatch and scattered.
64	Tank M48, w/mannequin man stand- ing in tur- rest	1575	Side on, hull defilade	None/ destroyed	Light/ destroyed	Paint on tank scorched; mannequin de- stroyed by burning and scattered.
65	Mortar, 81 mm	2050	Dug in	None	None	None

43

**UNCLASSIFIED**

**EXEMPTED DATA  
Under Energy Act 1946**

PRE - SHOT

and

POST - SHOT

PHOTOS

Shot "SHOT"

AFTER

2

UNCLASSIFIED

GP. 1  
SECRET

AFTER

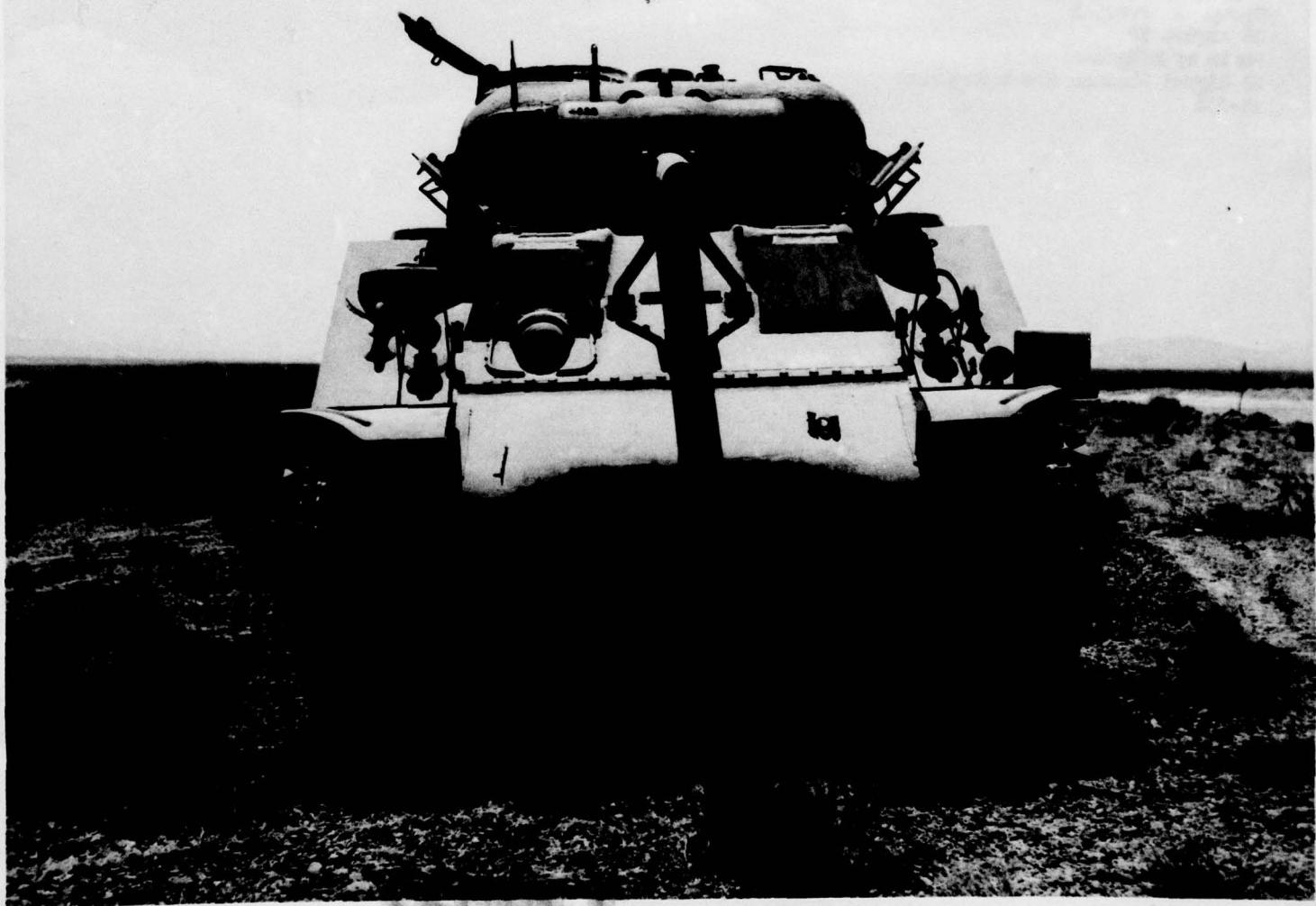
1



BEFORE

1

UNCLASSIFIED



BEFORE

2

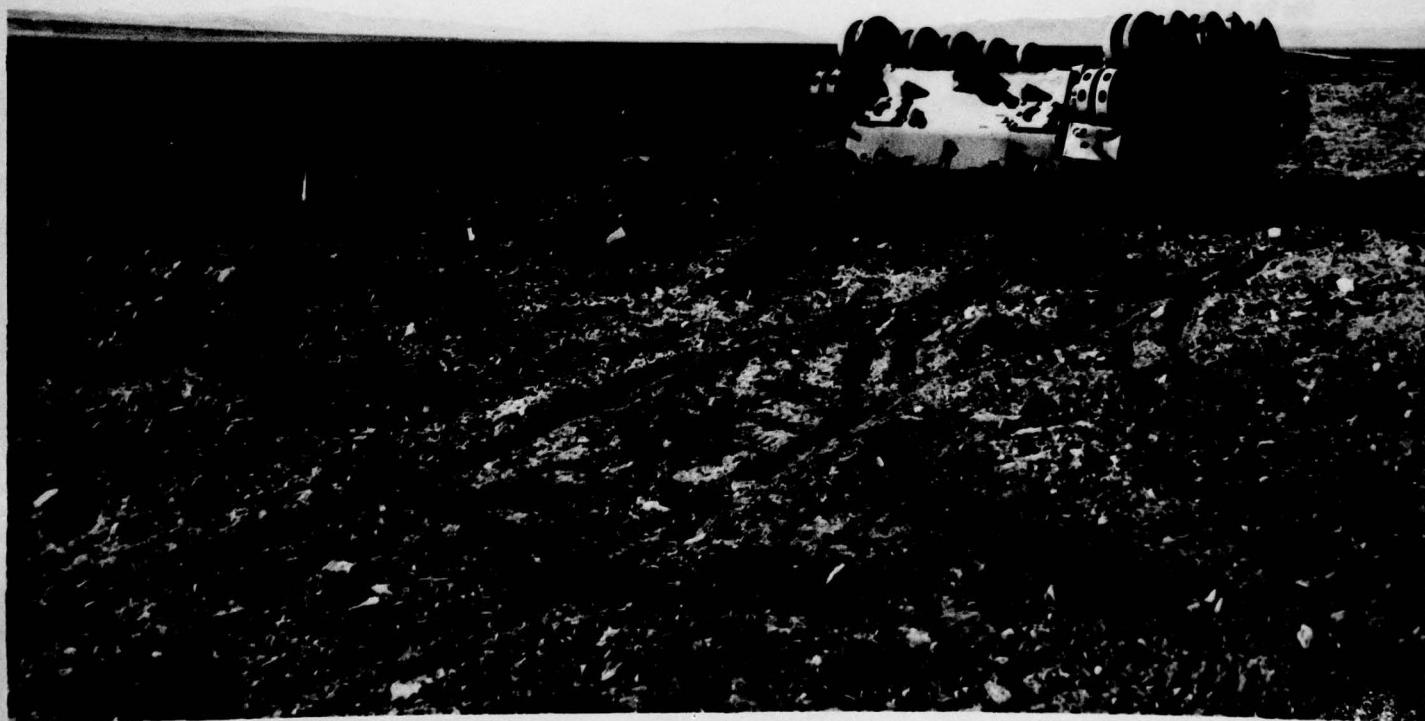
UNCLASSIFIED



AFTER

4

UNCLASSIFIED



AFTER

UNCLASSIFIED

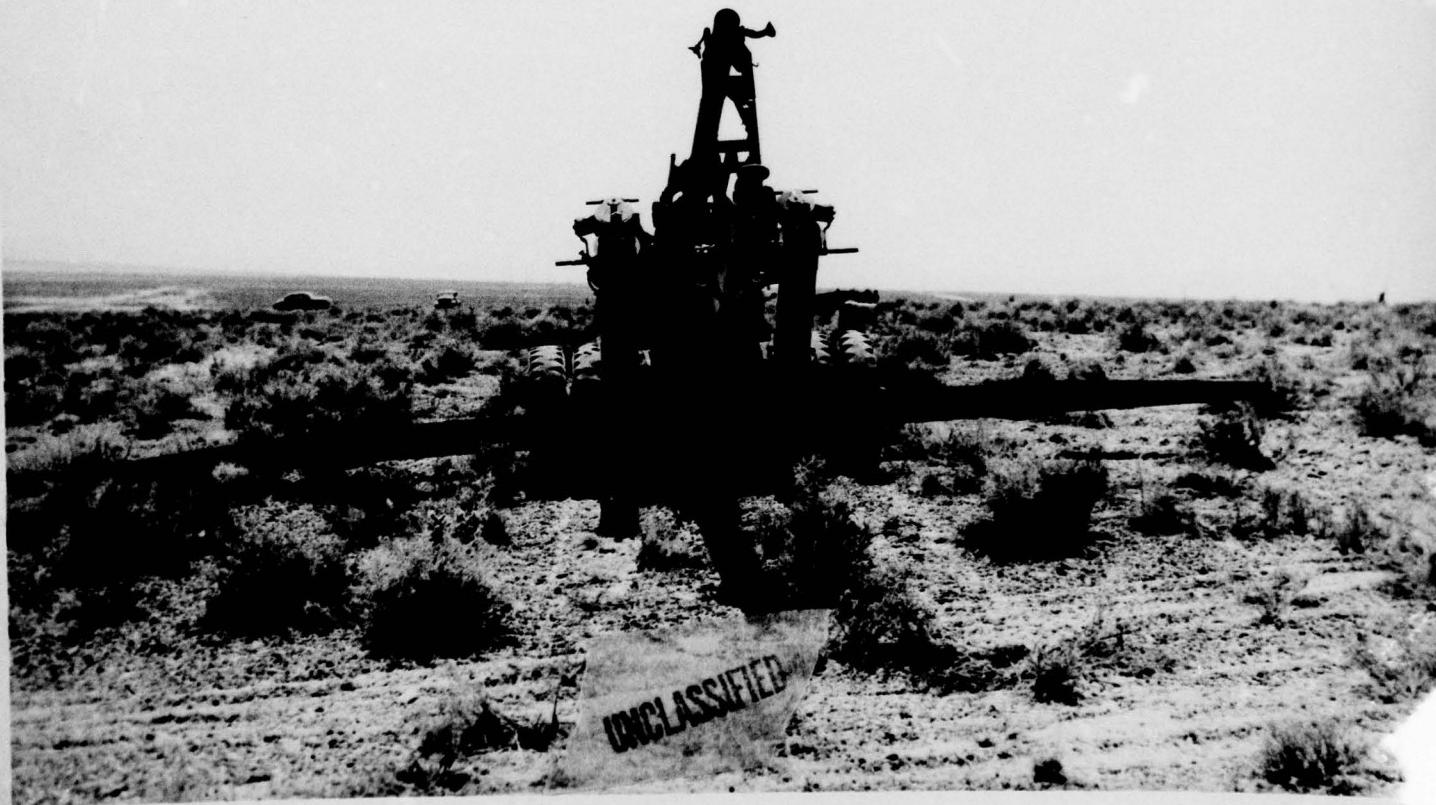


BEFORE

3

UNCLASSIFIED

UNCLASSIFIED



BEFORE

4

UNCLASSIFIED  
SECRET

UNCLASSIFIED

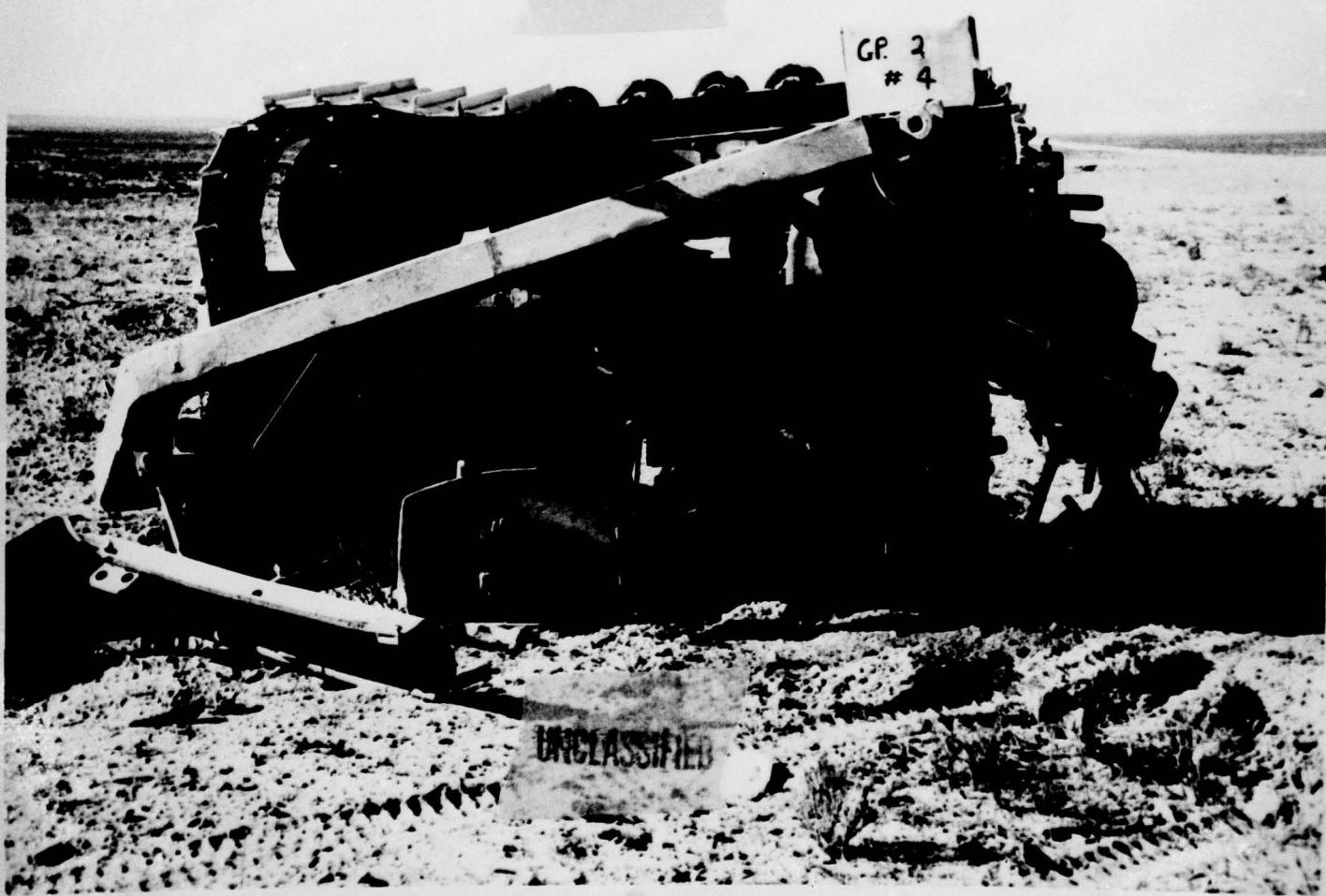


AFTER

6

UNCLASSIFIED

GP. 2  
# 4



AFTER

5

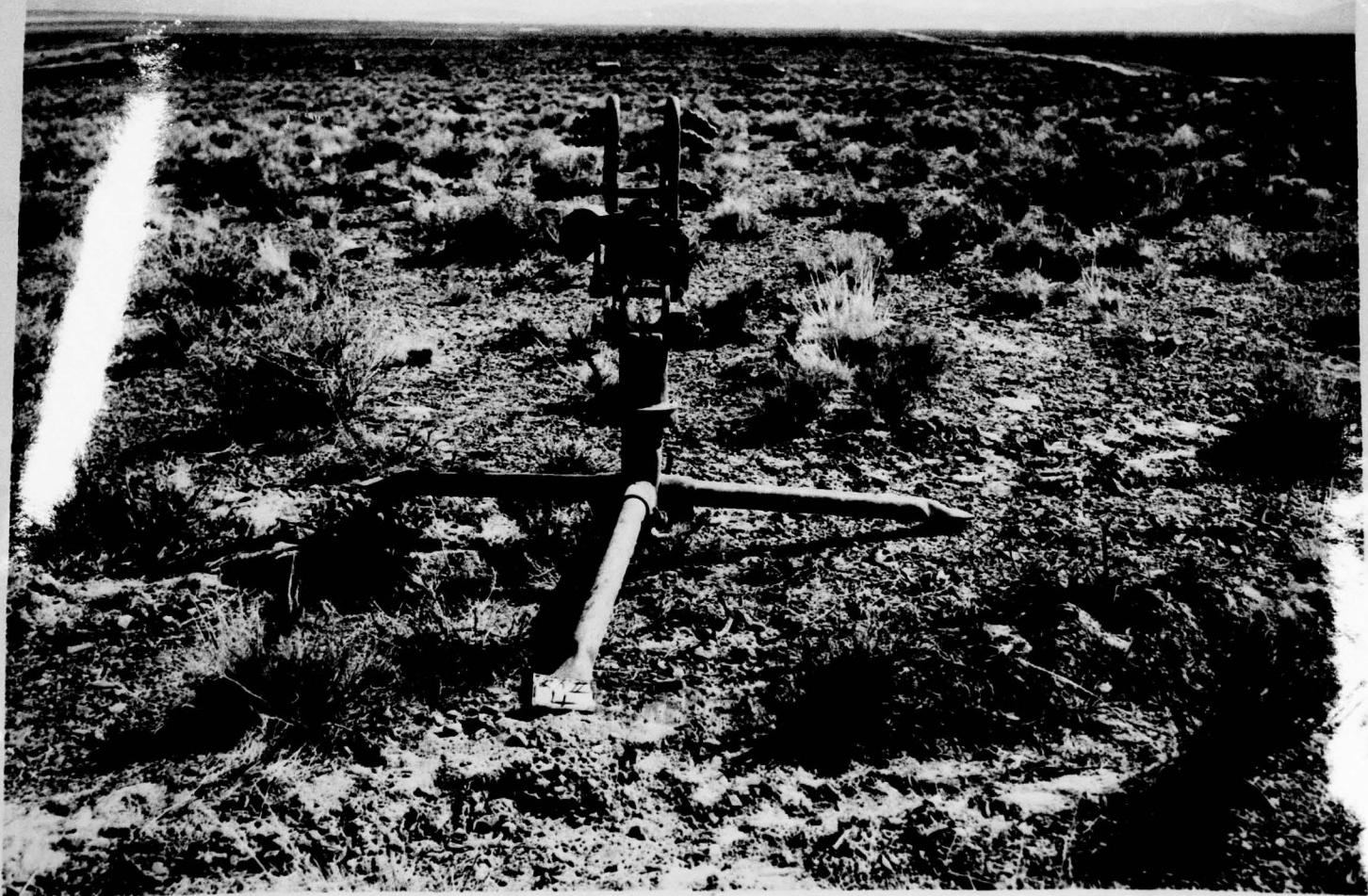
UNCLASSIFIED



BEFORE

5

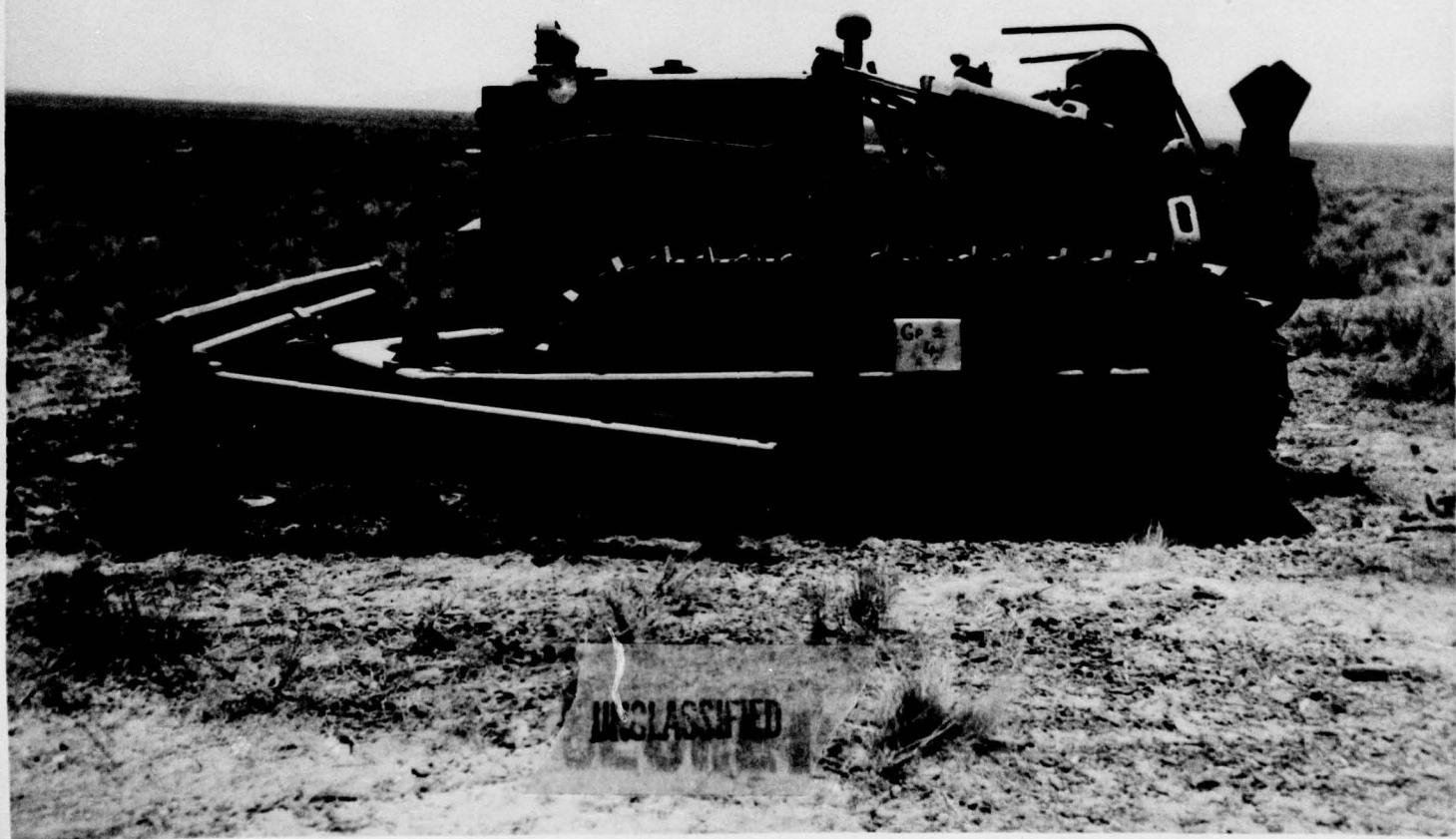
~~SECRET~~  
UNCLASSIFIED



BEFORE

6

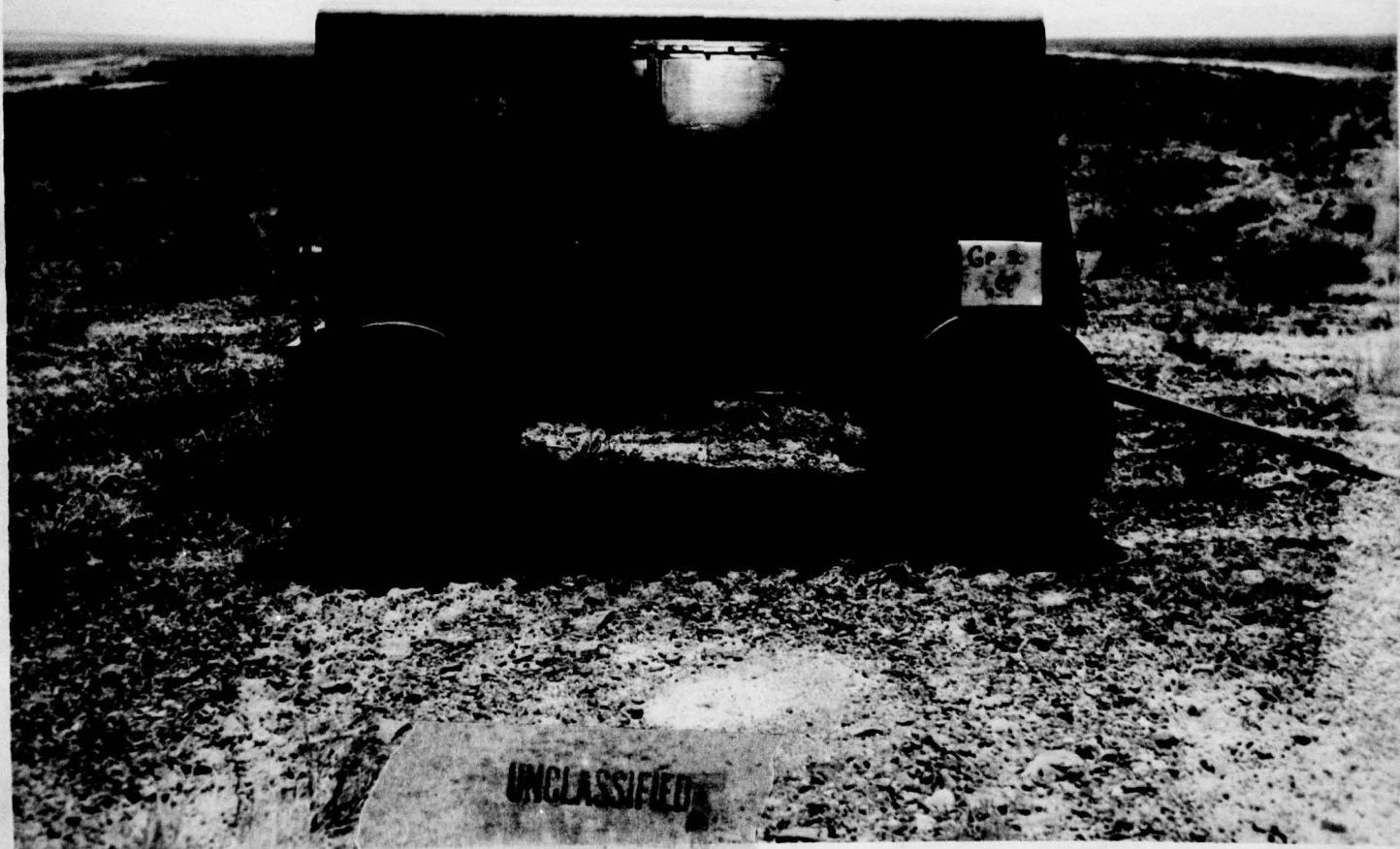
UNCLASSIFIED



BEFORE

8

SECRET  
UNCLASSIFIED

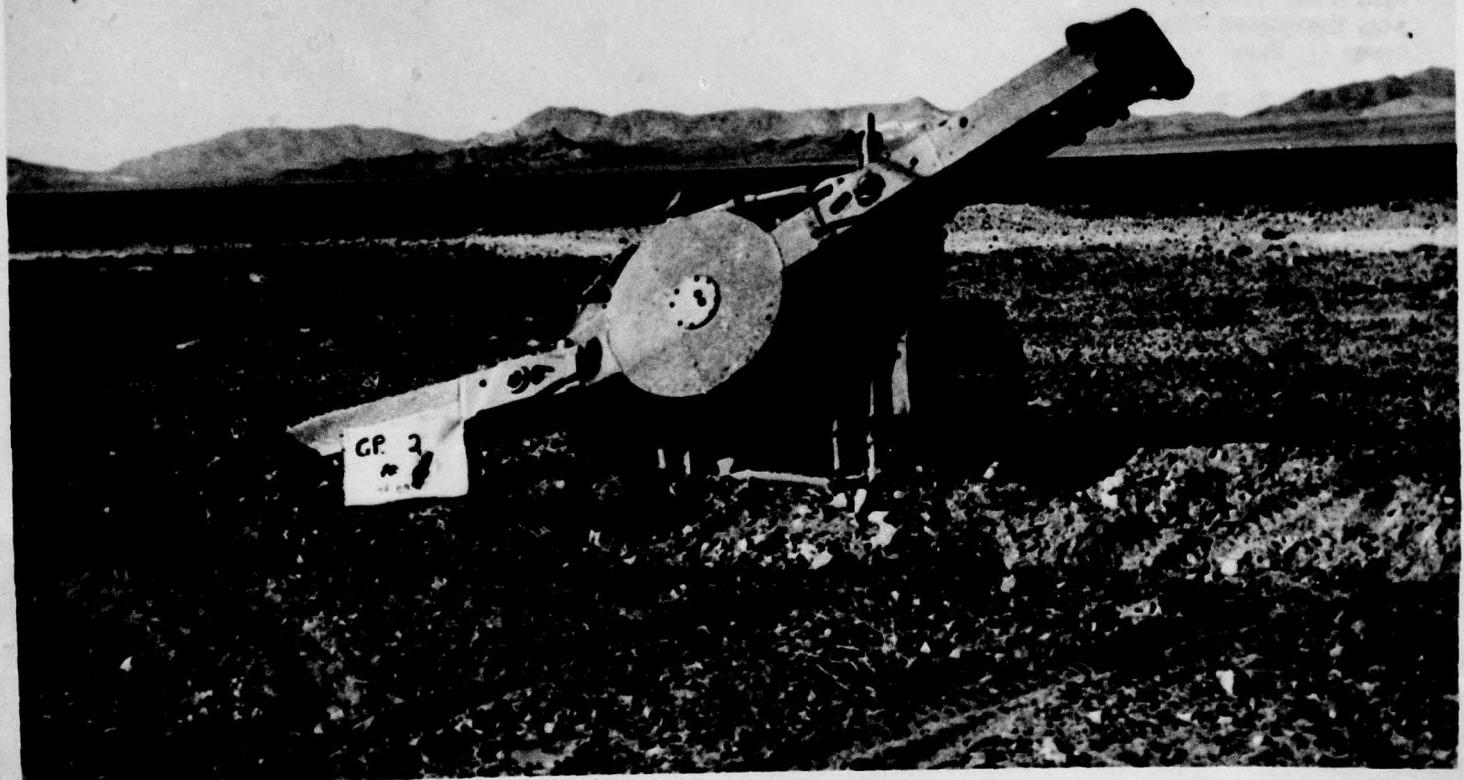


UNCLASSIFIED

AFTER

7

UNCLASSIFIED



BEFORE

7

UNCLASSIFIED



BEFORE

8

~~SECRET~~



AFTER

8

UNCLASSIFIED  
SHELL



AFTER

10

UNCLASSIFIED



AFTER

9

UNCLASSIFIED



BEFORE

UNCLASSIFIED  
SECRET



BEFORE

10

UNCLASSIFIED  
SECRET



GP-3  
1  
9-4

AFTER

12

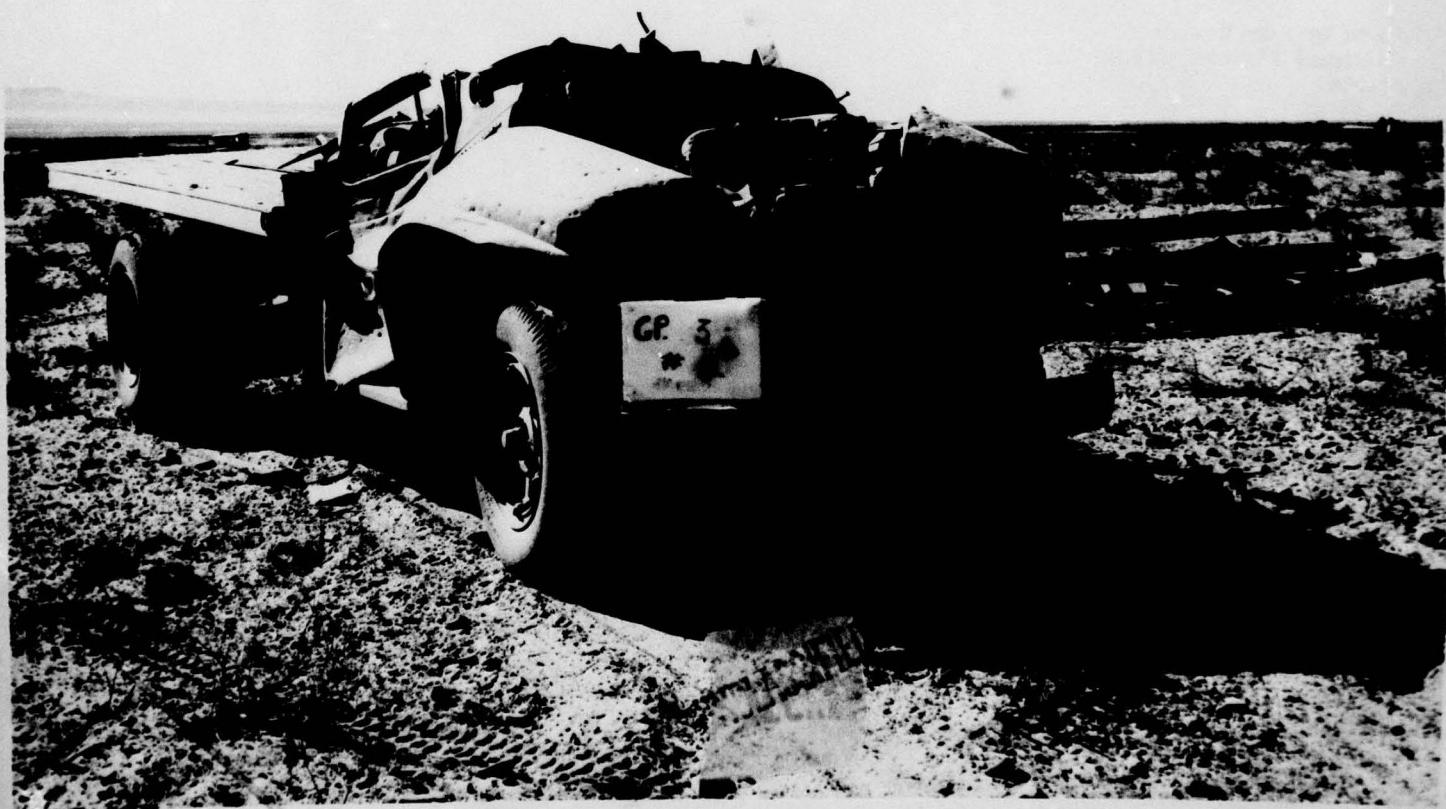
UNCLASSIFIED



AFTER

11

UNCLASSIFIED



BEFORE

11

SECURE  
UNCLASSIFIED



BEFORE

12

SEARCHED  
UNCLASSIFIED



AFTER

14



AFTER

23

UNCLASSIFIED



BEFORE

13

UNCLASSIFIED

SECRET

BEFORE

24

UNCLAS

UNCLASSIFIED

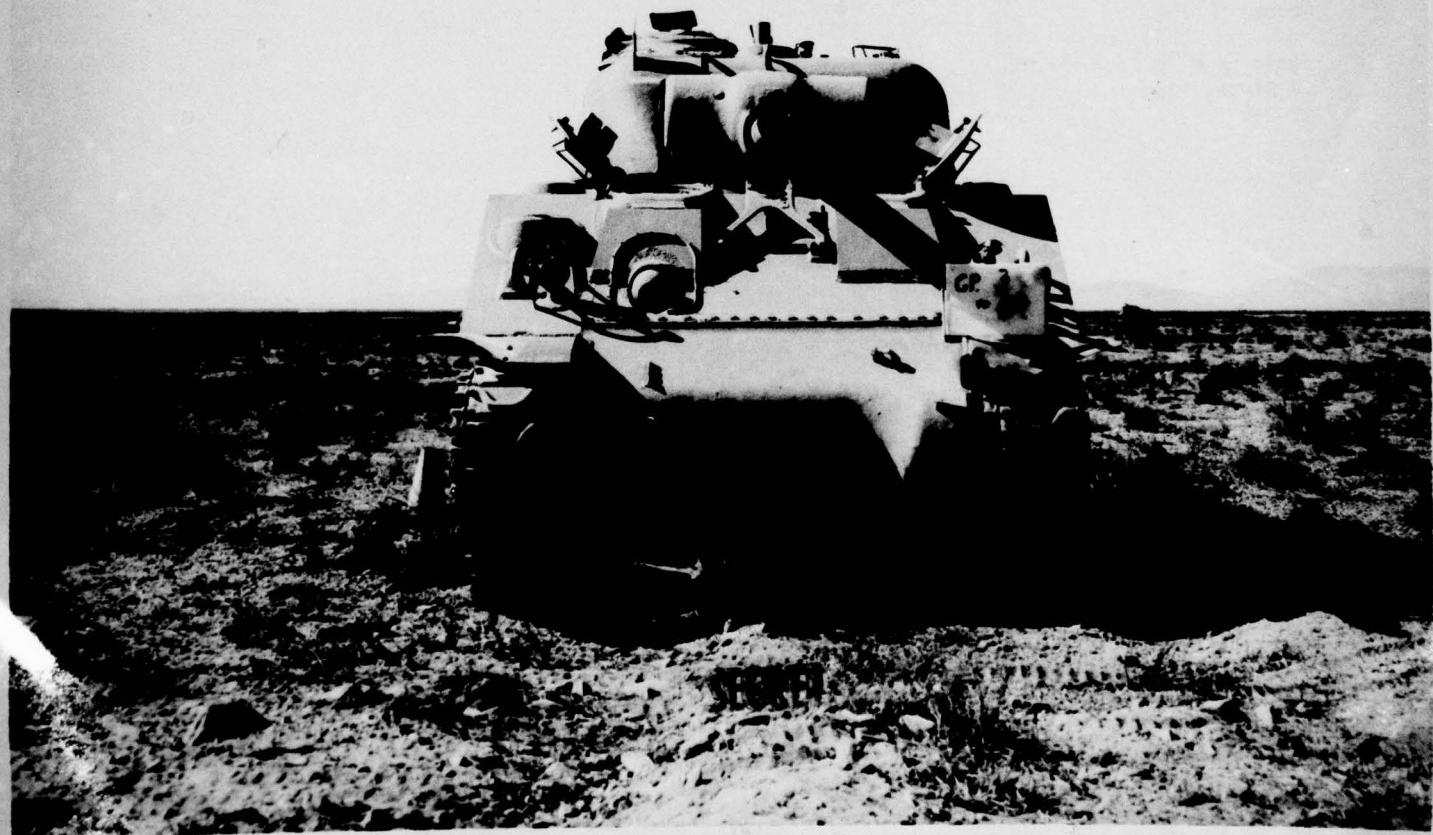
GP-3  
4



AFTER

16

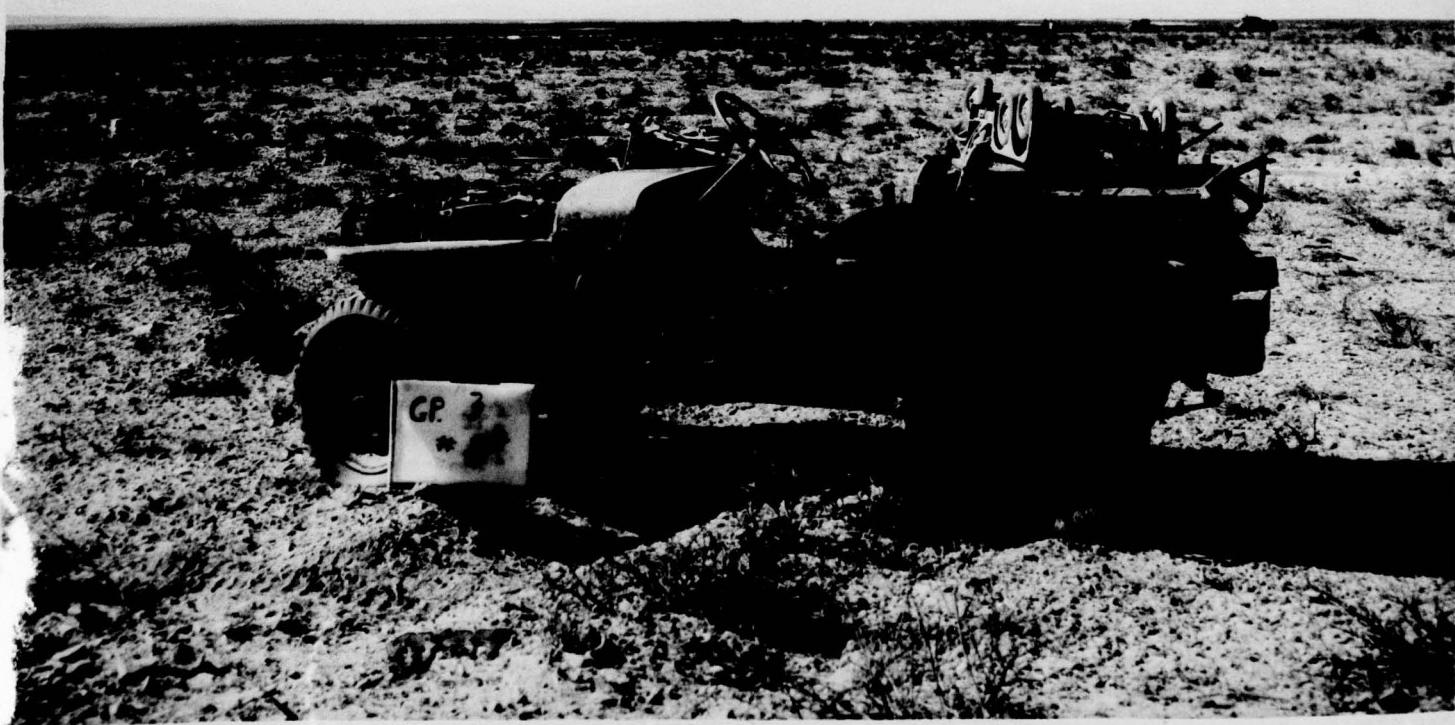
UNCLASSIFIED  
UNCLASSIFIED



AFTER

15

UNCLASSIFIED



BEFORE

15

UNCLASSIFIED

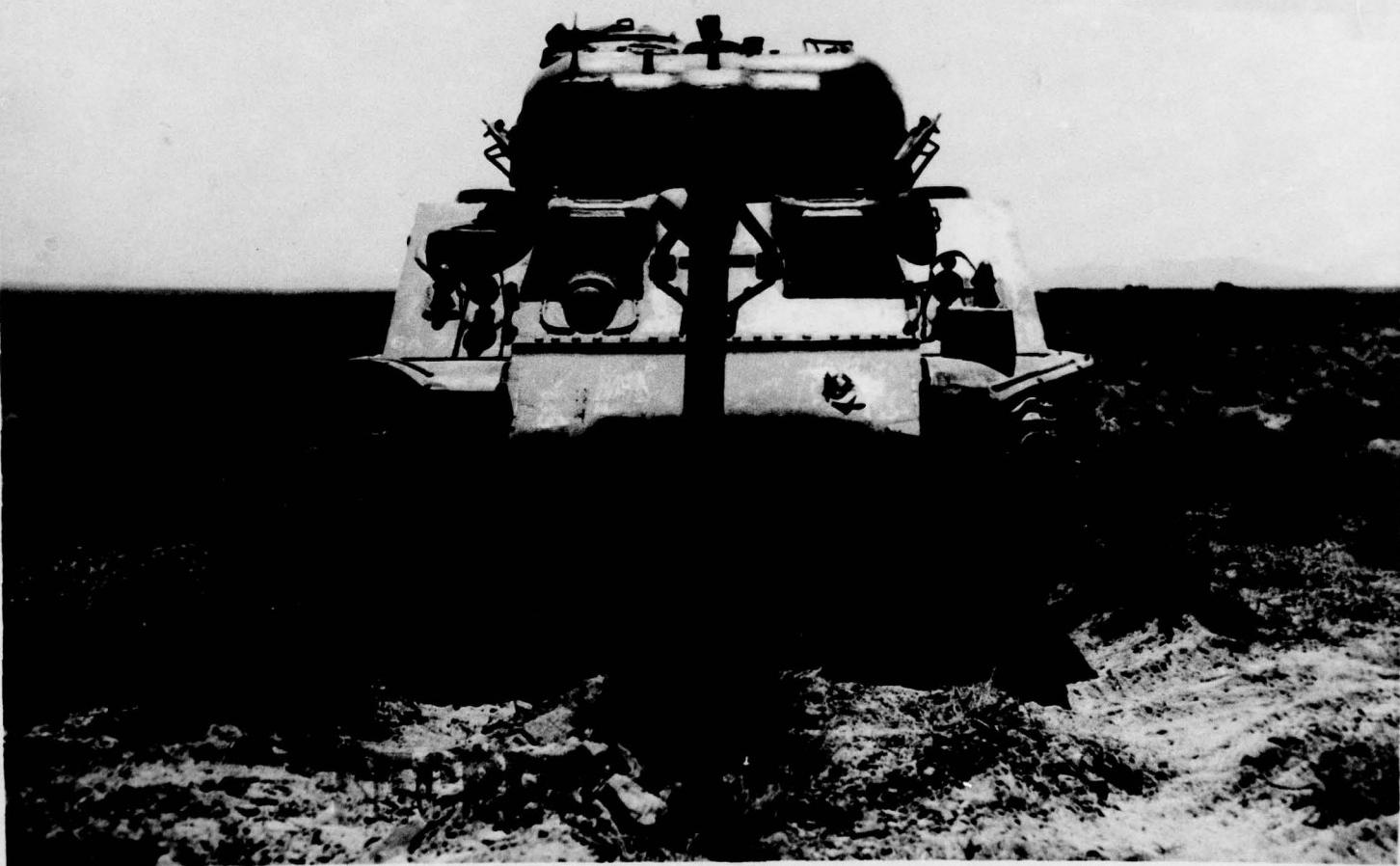


SECRET

BEFORE

16

**SECRET**  
UNCLASSIFIED



AFTER

18

GP.



AFTER

27

LOCK

GR

UNCLASSIFIED

BEFORE

17

GF 3  
10

UNCLASSIFIED



AFTER

20

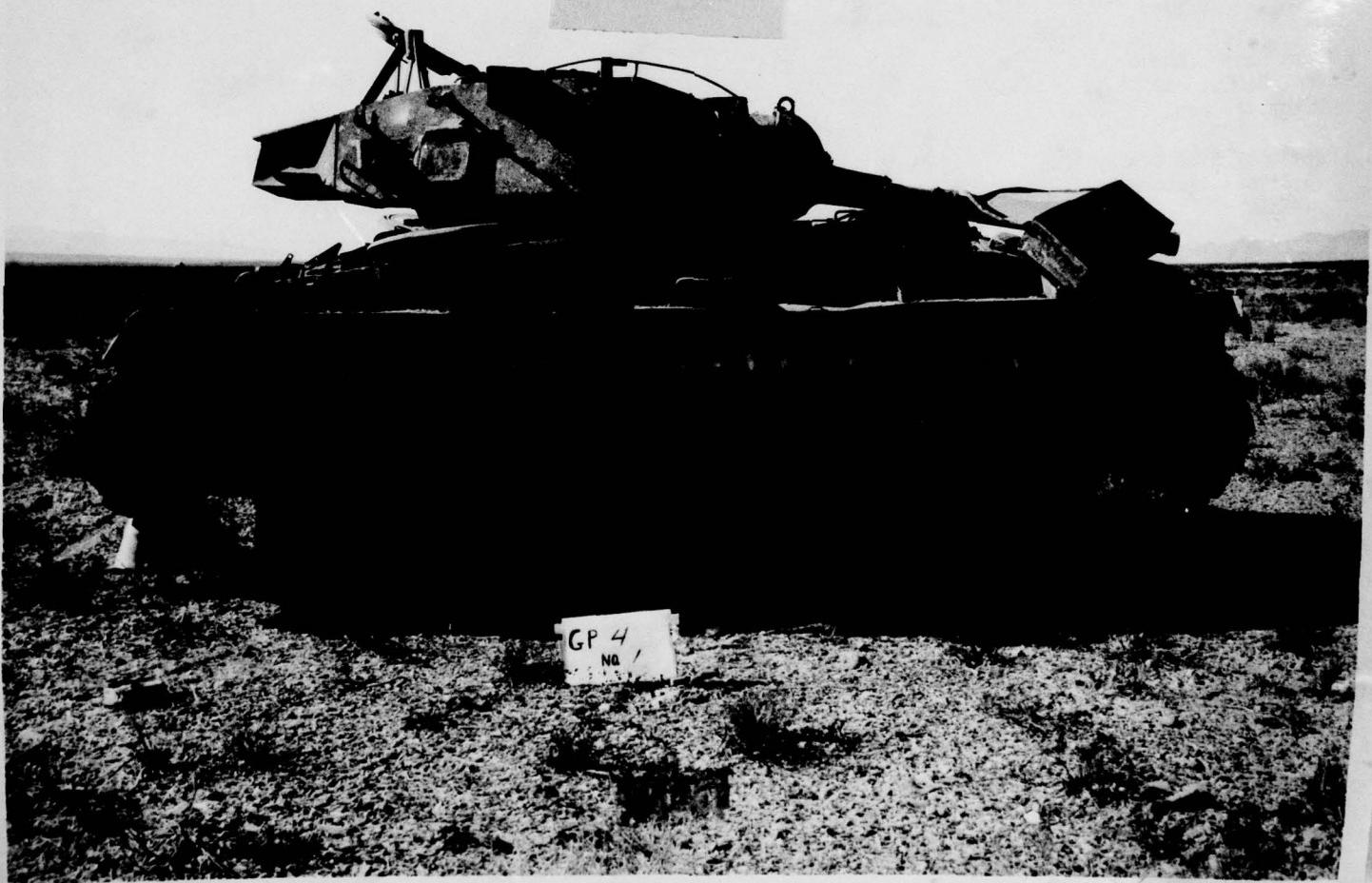
UNCLASSIFIED  
SECRET



AFTER

19

SECRET  
UNCLASSIFIED



BEFORE

19

~~SECRET~~  
UNCLASSIFIED



BEFORE

20

SECRET  
UNCLASSIFIED



APRIL

UNCLASSIFIED

22

SLC

GP  
100



AFTER

21

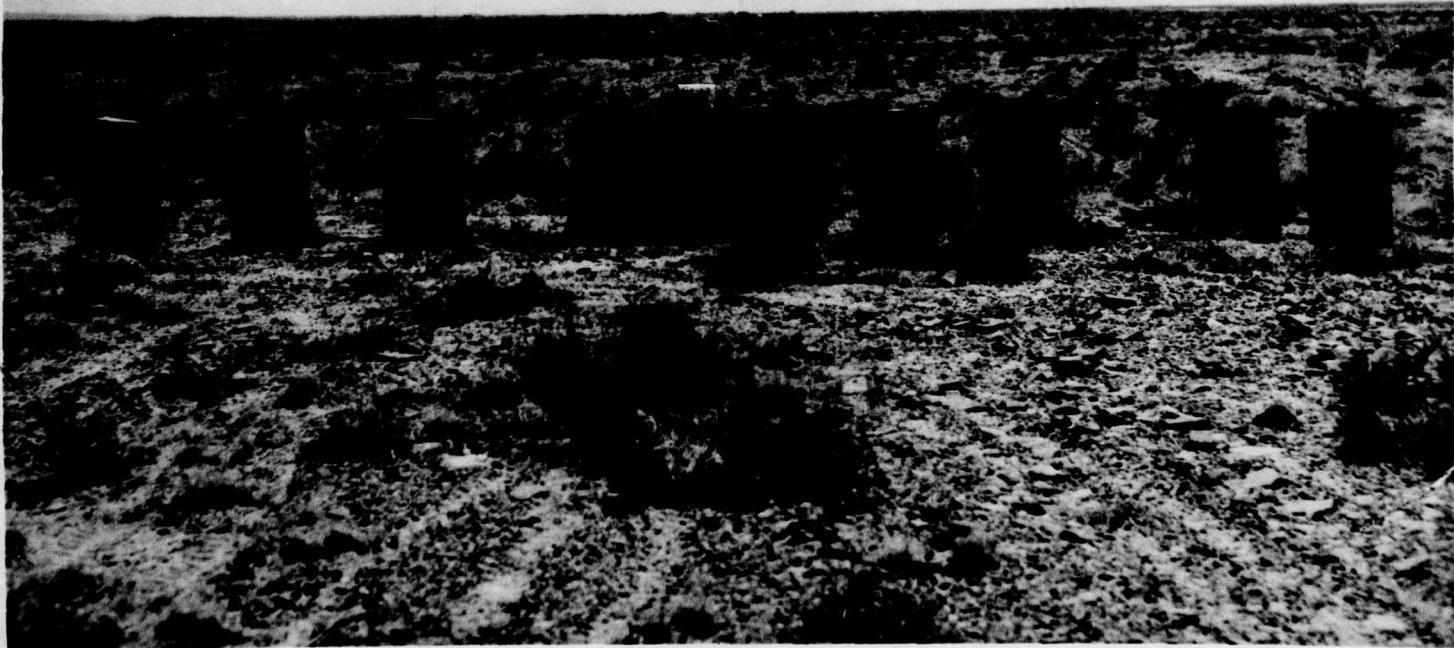
UNCLASSIFIED



REPORT

21

UNCLASSIFIED



BEFORE

22



AFTER

2b

GP 5  
No. 0

AFTER

23

SECRET  
UNCLASSIFIED



BEFORE

23

SECRET  
UNCLASSIFIED

CLASSIFIED



BEFORE

24

G5  
O



AFTER

26

UNCLASSIFIED



AFTER

25



ALL INFORMATION CONTAINED

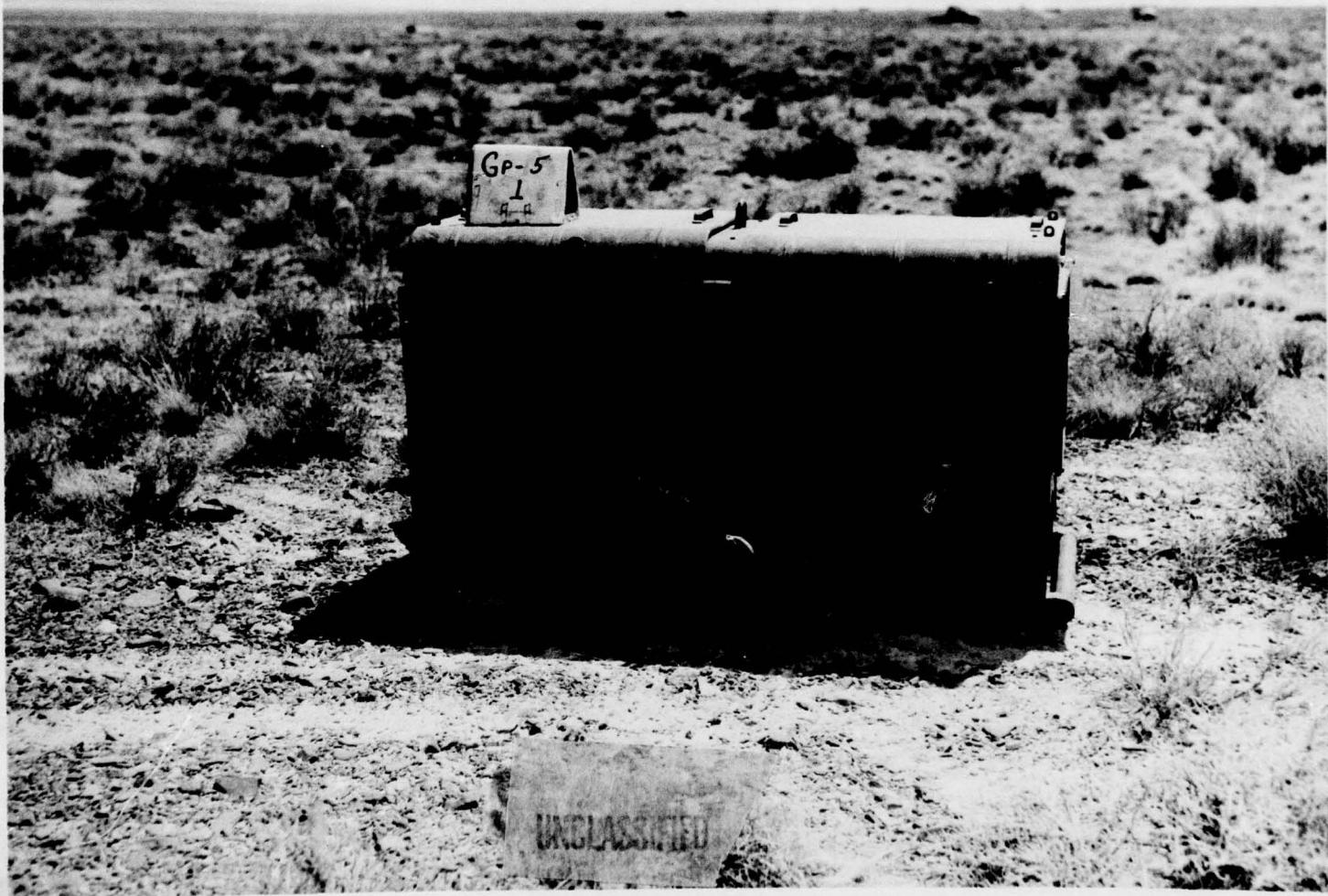
BEFORE

25

SECRET  
UNCLASSIFIED

GP-5  
L  
A-A

UNCLASSIFIED



BEFORE

26

UNCLASSIFIED  
SECRET



AFTER

28

UNCLASSIFIED



AFTER

27

UNCLASSIFIED

GP 5  
No 4

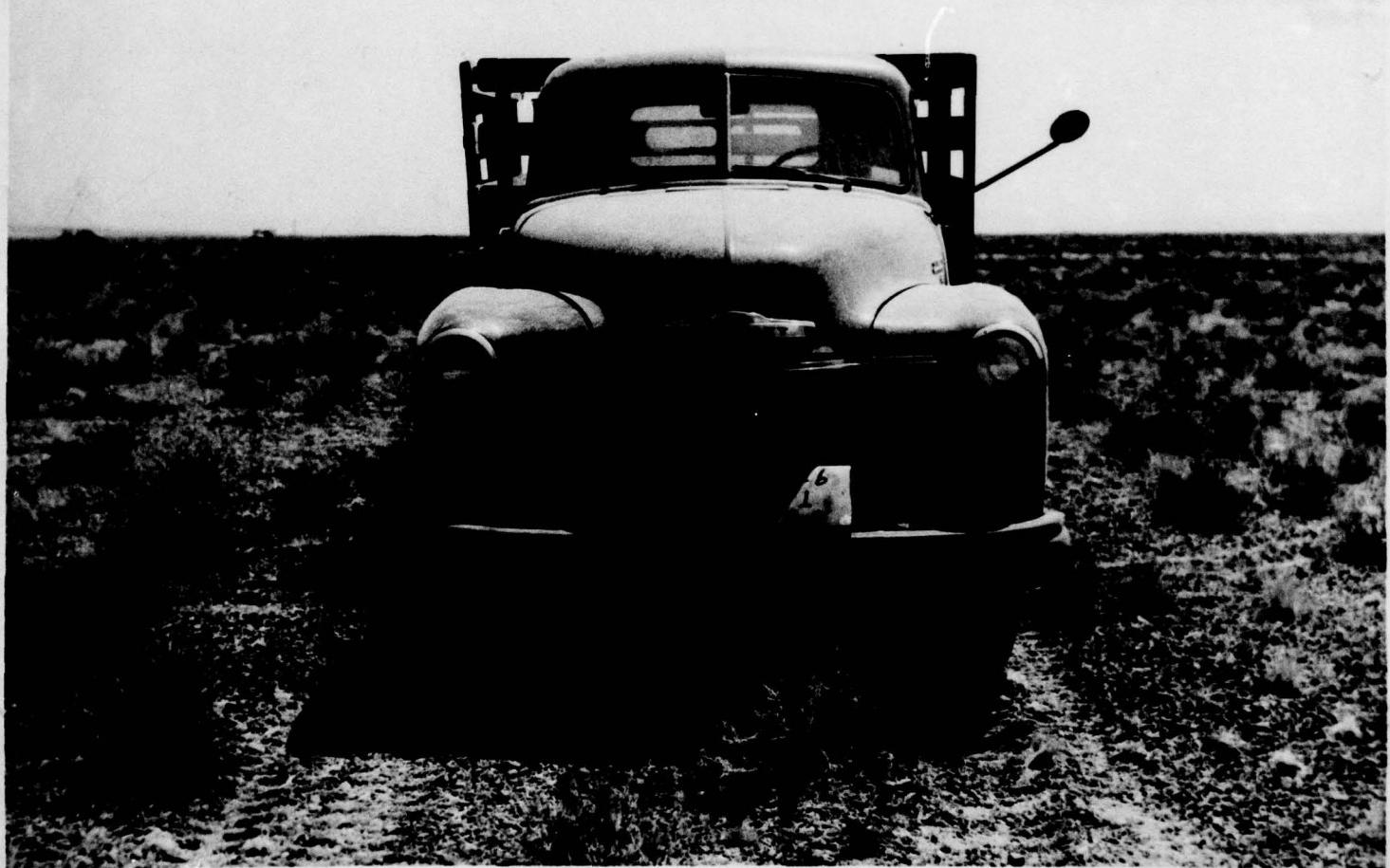
~~SECRET~~



BEFORE

28

SECRET  
UNCLASSIFIED



AFTER

30

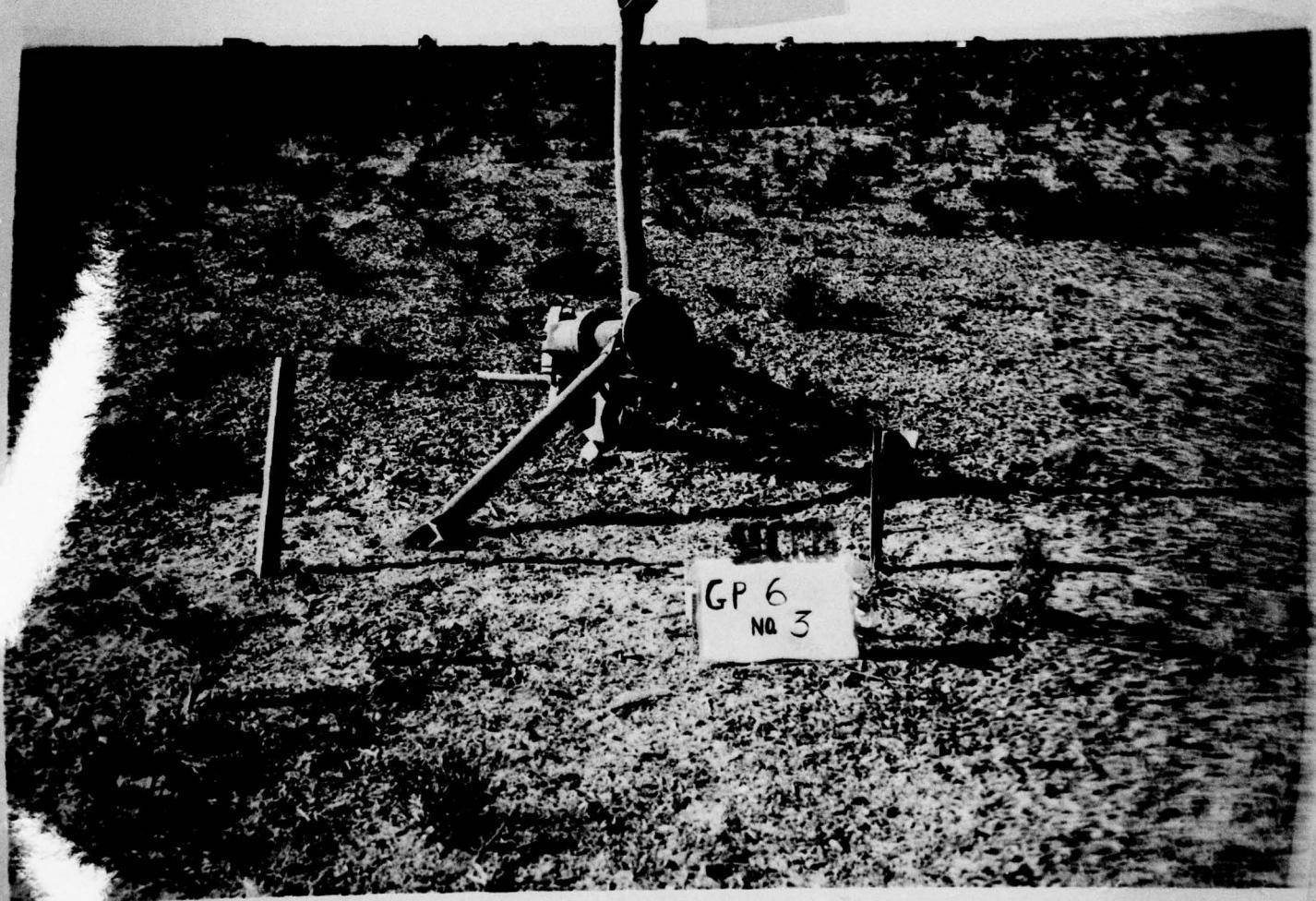
UNCLASSIFIED

GP 6  
No 4

AFTER

29

UNSEALED



BEFORE

29

**SECRET**  
UNCLASSIFIED



BEFORE

S UNCLASSIFIED



AFTER

32

UNCLASSIFIED



AFTER

31

UNCLASSIFIED



BEFORE

31

~~SECRET~~  
UNCLASSIFIED



BEFORE

32

UNCLASSIFIED



AFTER

34

GP 83  
SECRET  
NQ

UNCLASSIFIED

AD-A078 561 EXERCISE DESERT ROCK LAS VEGAS NV  
EXERCISE DESERT ROCK VII AND VIII. ANNEX L.(U)  
1957

F/6 18/3

UNCLASSIFIED

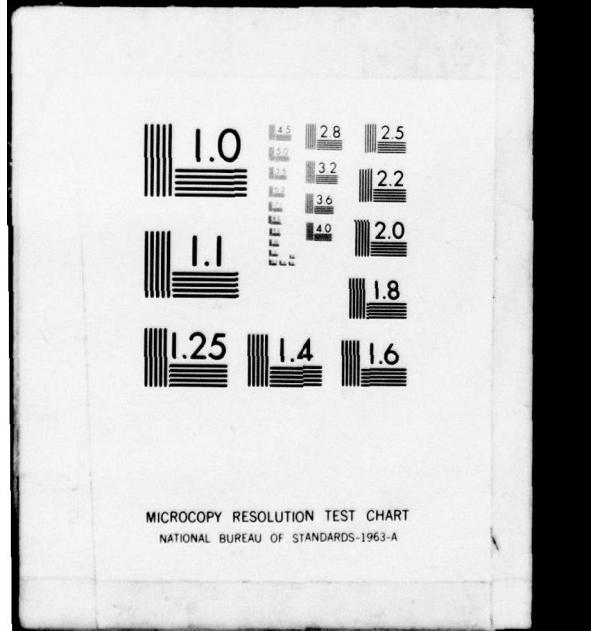
NL

3 OF 2  
AD  
A078561



END  
DATE  
FILMED  
1 - 80  
DDC

07856



AFTER

33

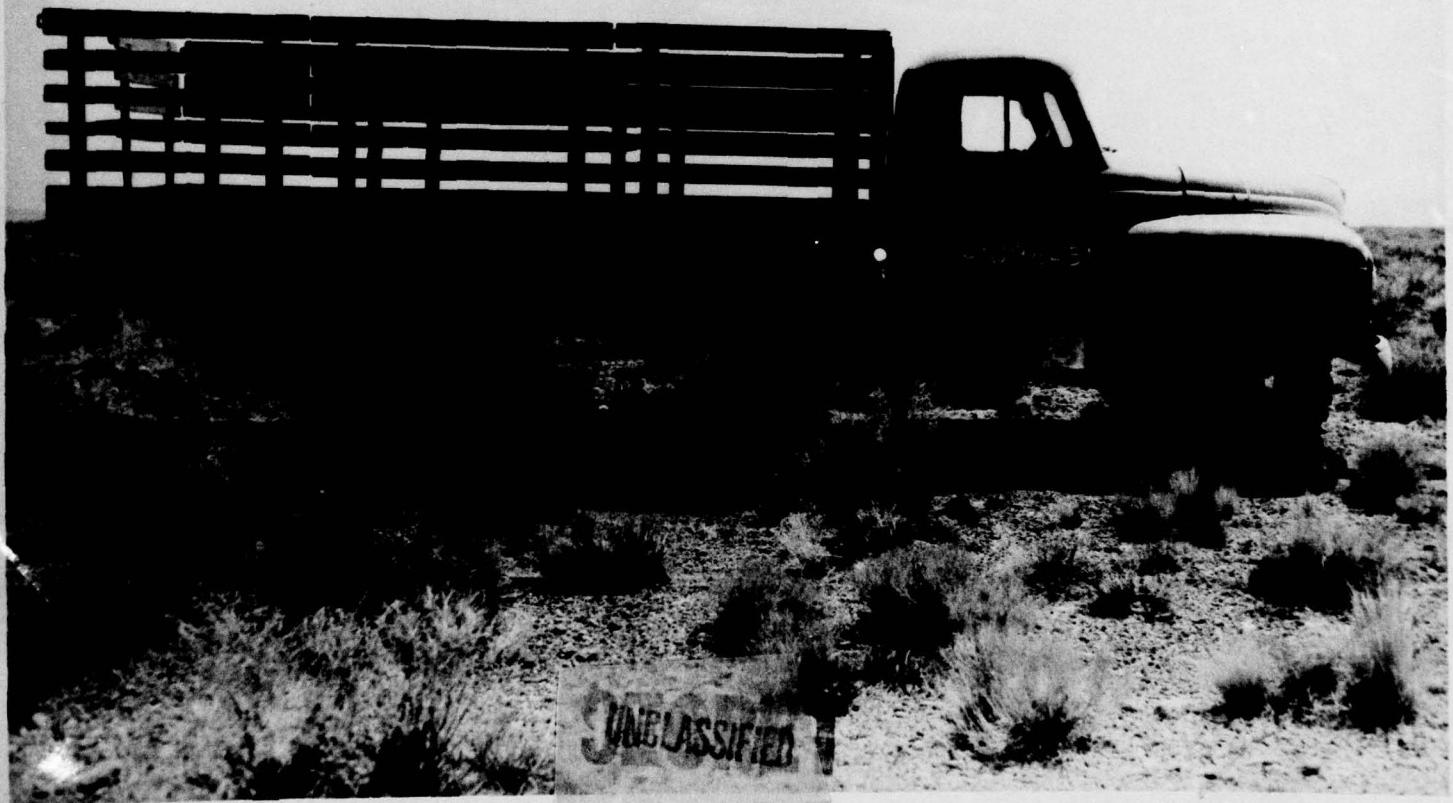
UNCLASSIFIED



~~SECRET~~

BEFORE

33

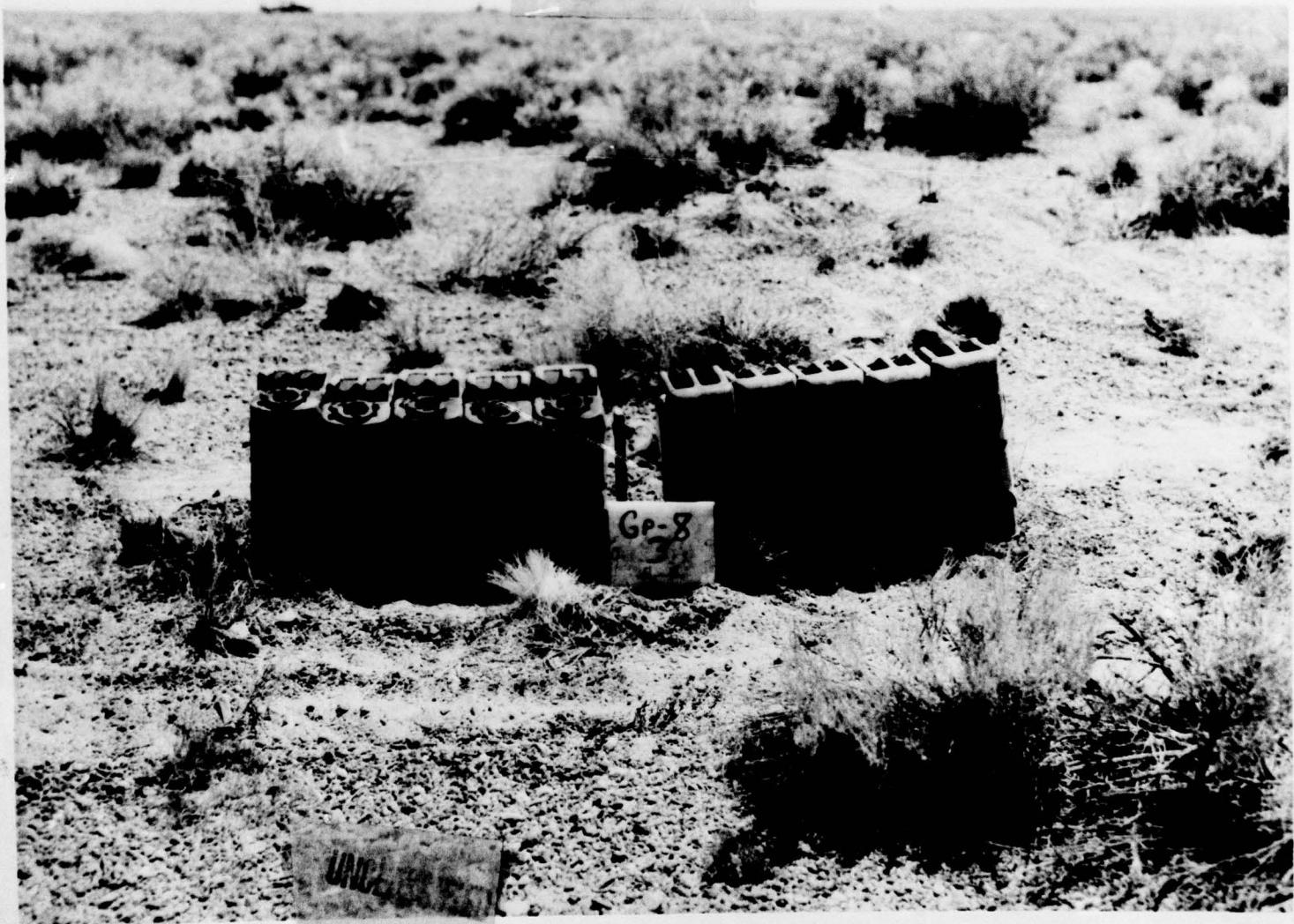


~~UNCLASSIFIED~~

BEFORE

34

SECRET  
UNCLASSIFIED



AFTER

36

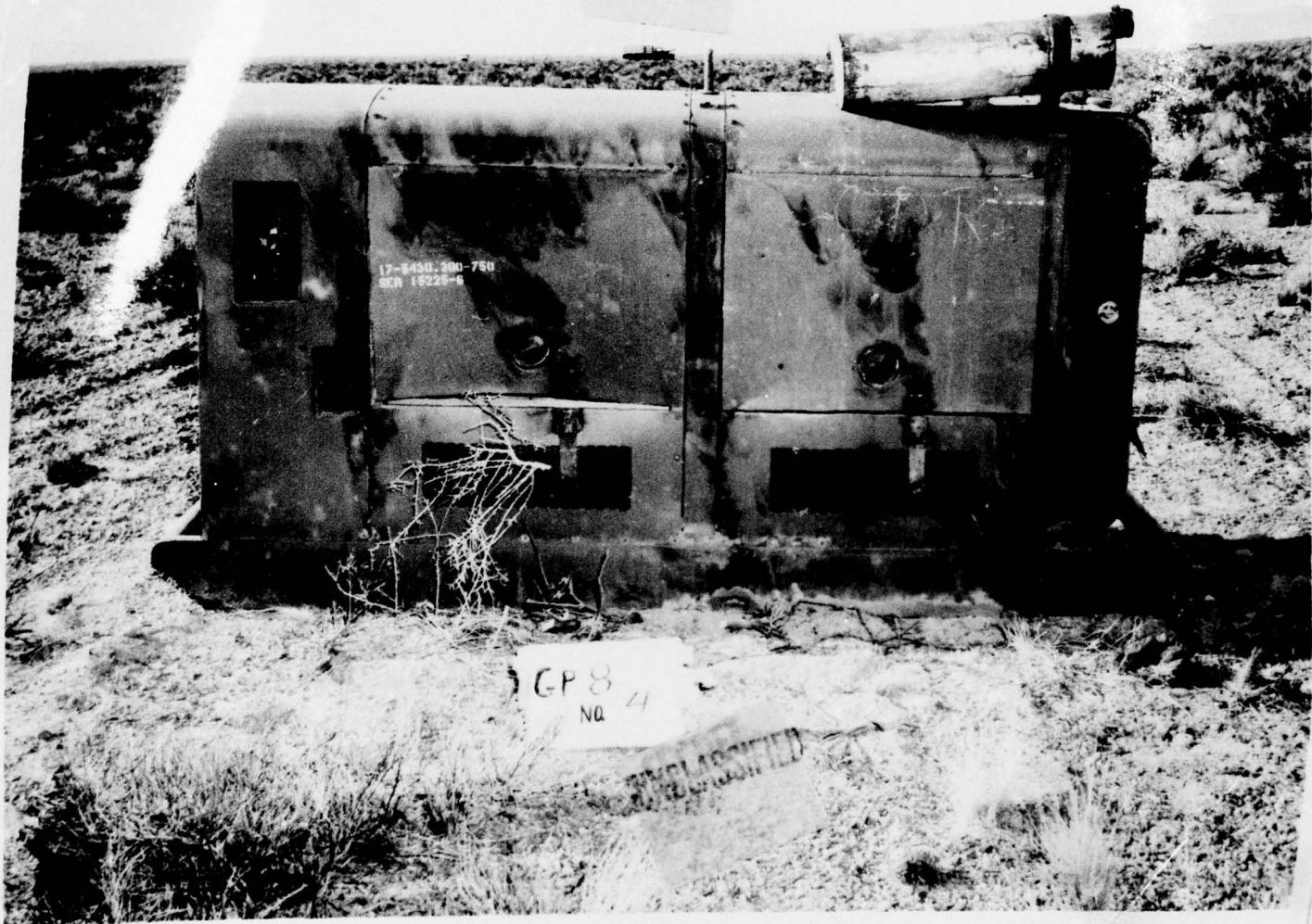
UNCLASSIFIED



AFTER

35

UNCLASSIFIED



BEFORE

35

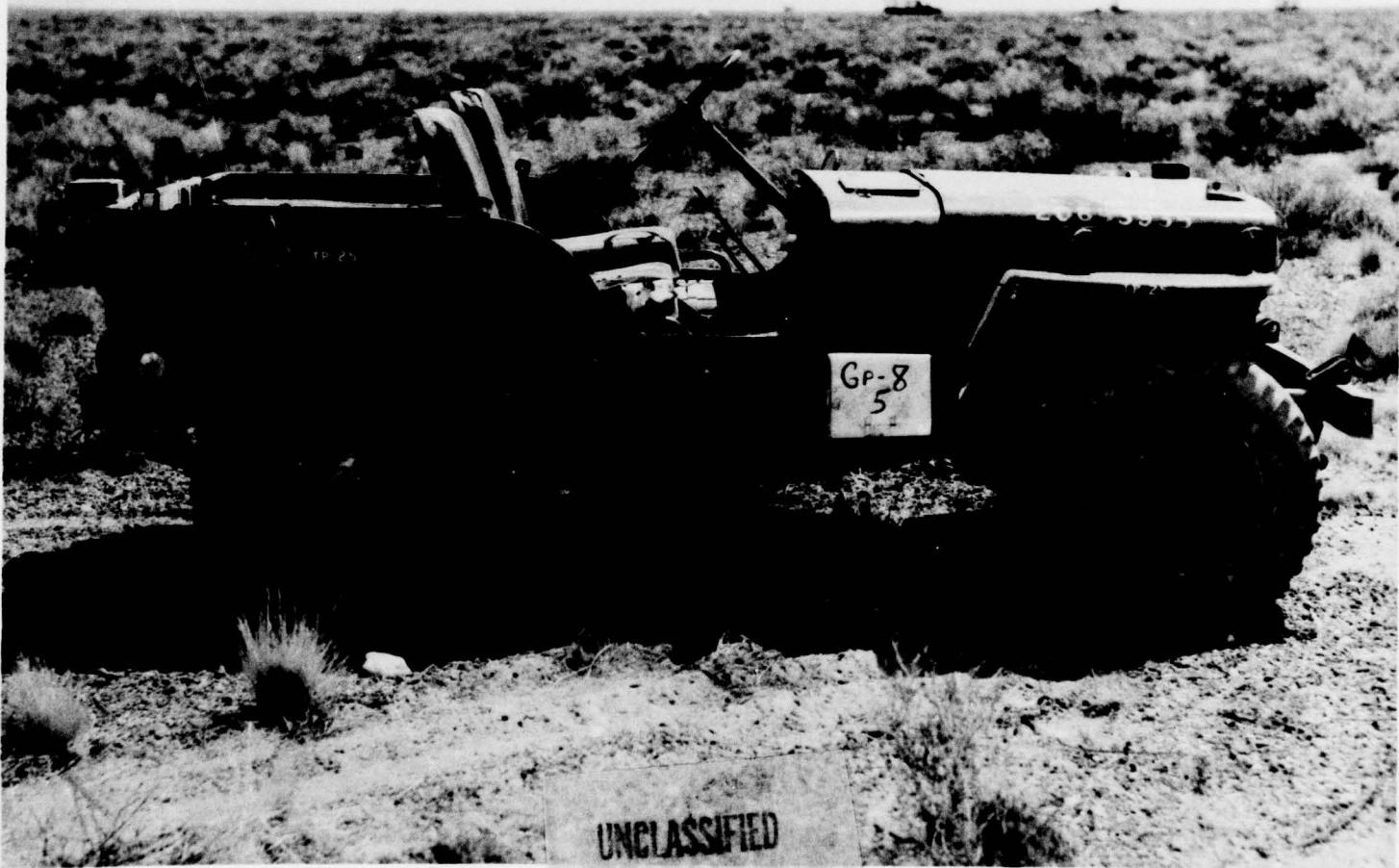
UNCLASSIFIED



BEFORE

36

UNCLASSIFIED

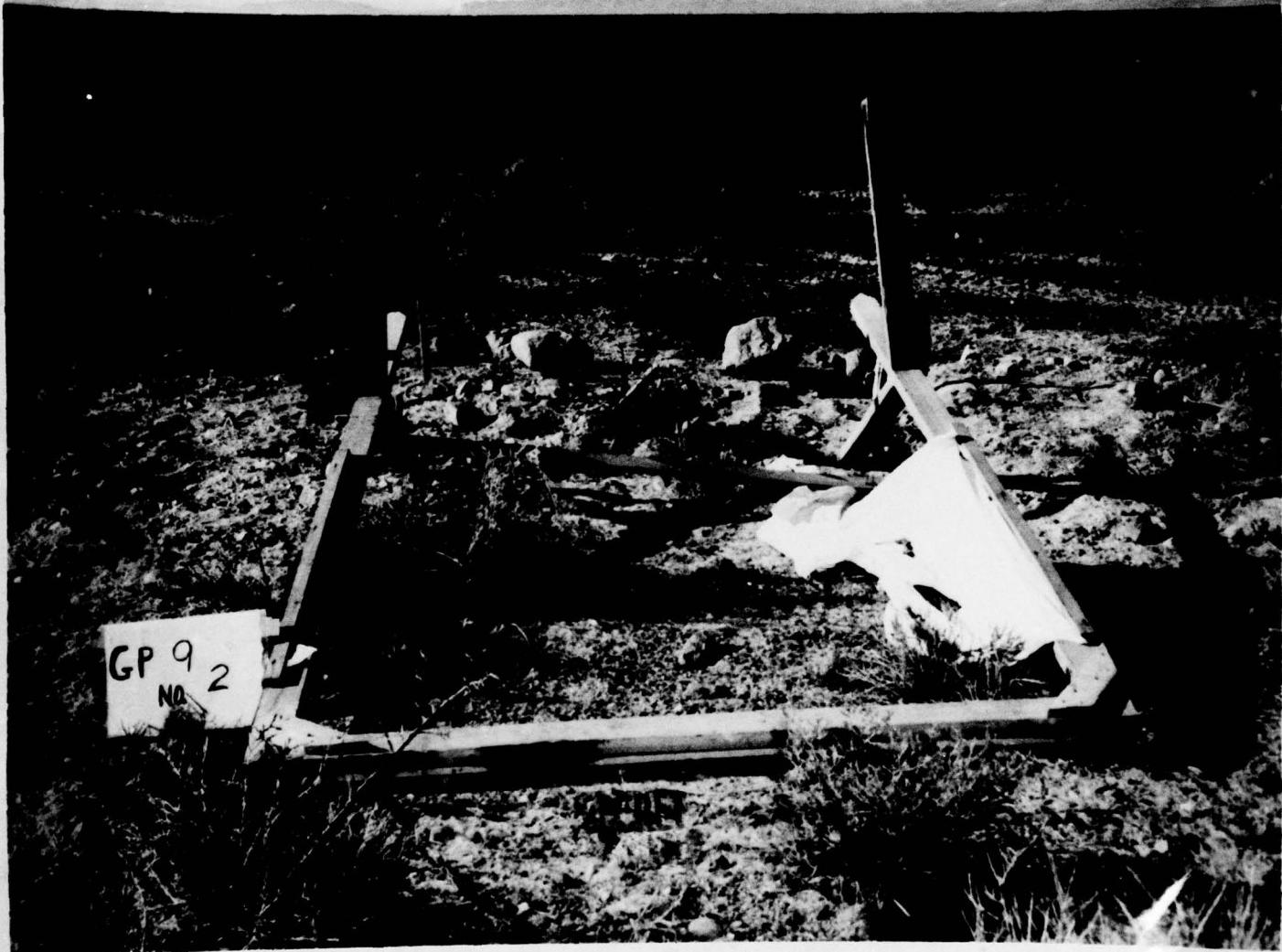


UNCLASSIFIED

CLASSIFIED

AFTER

38



AFTER

37

UNCLASSIFIED



BEFORE

SECRET

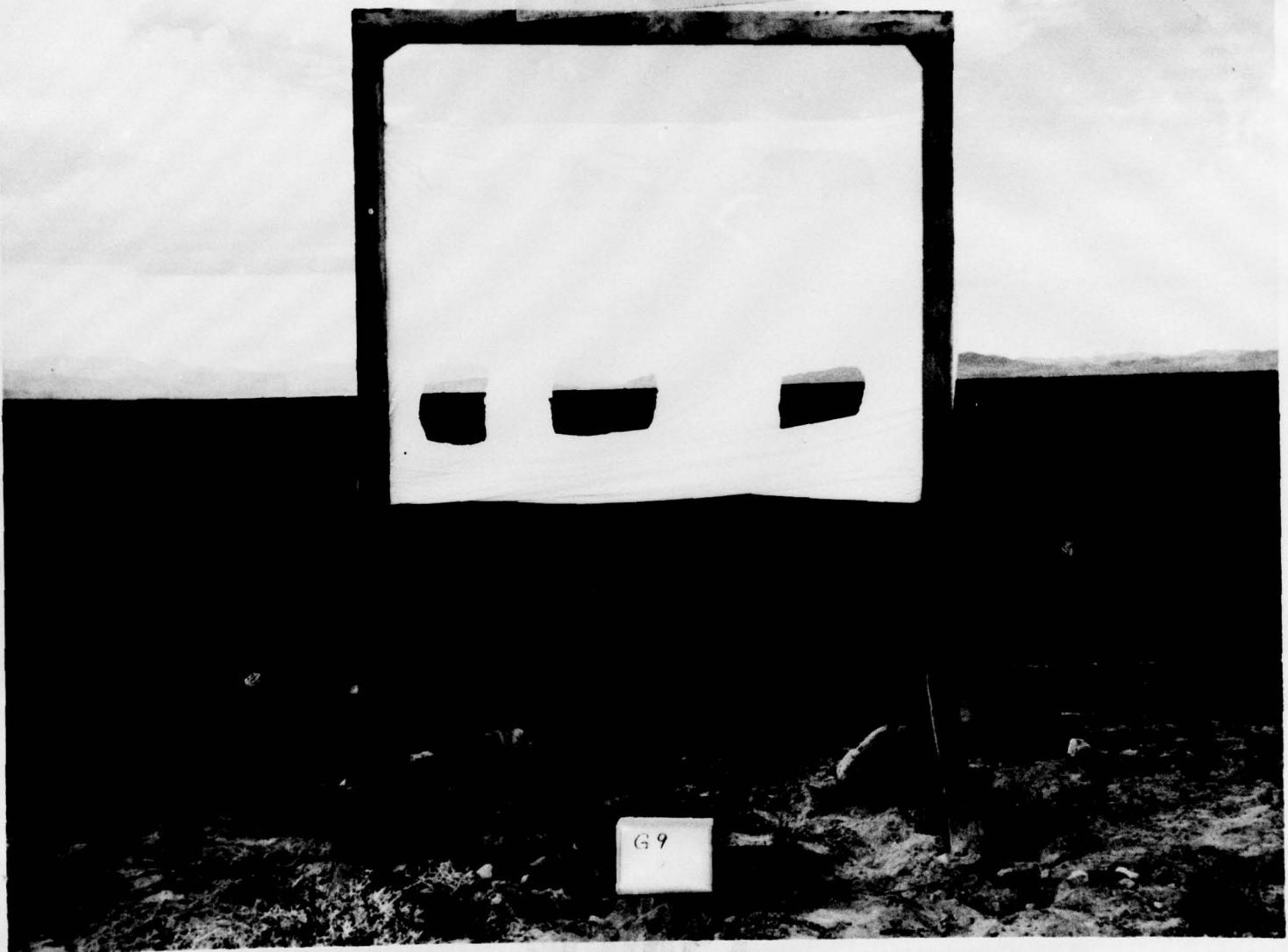
37



BEFORE

38

UNCLASSIFIED



AFTER

40

SHREWSFIELD



AFTER

39

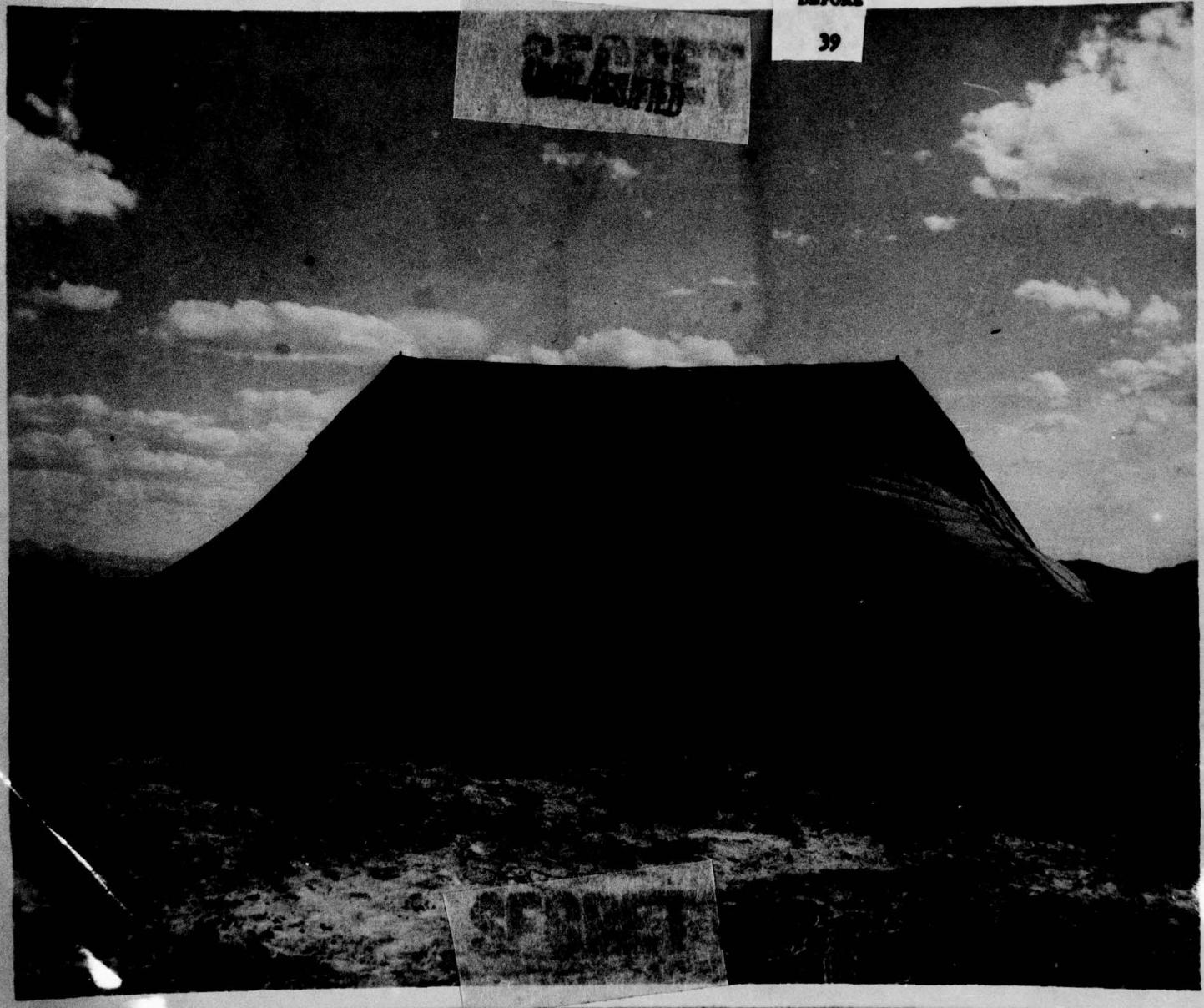
UNIDENTIFIED

294



BEFORE

39



BEFORE

40

SECRET  
UNCLASSIFIED



AFTER

42

UNCLASSIFIED

UNCLASSIFIED



AFTER

41

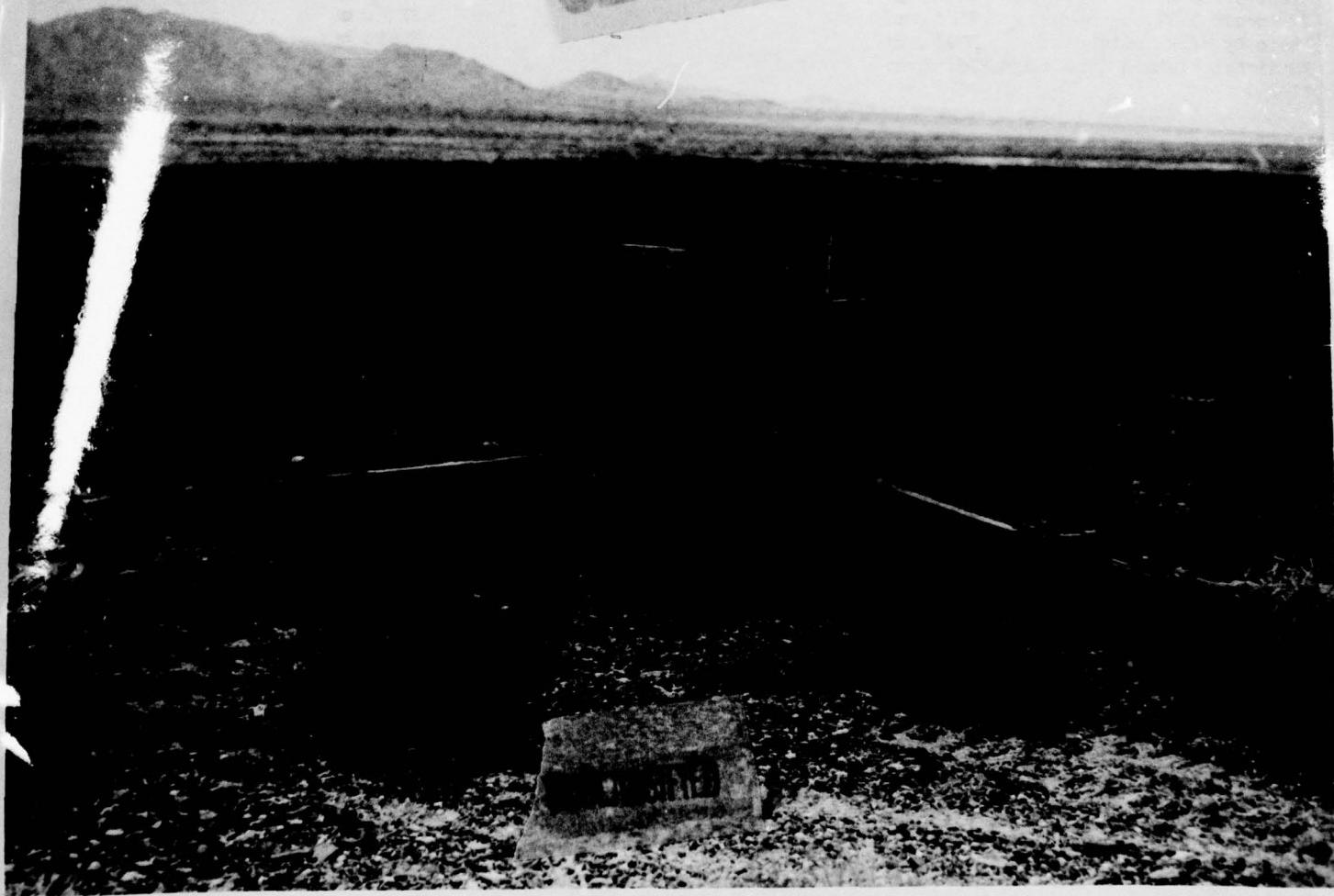
UNCLASSIFIED



BEFORE

41

UNCLASSIFIED



BEFORE

42

~~SECRET~~  
~~UNCLASSIFIED~~



AFTER



AFTER

43

UNCLASSIFIED

T4  
25

B50

UNCLASSIFIED



BEFORE

43

T 4  
2

UNCLASSIFIED



AFTER

46

UNCLASSIFIED

T4  
7

UNCLASSIFIED

AFTER

45

UNCLASSIFIED



UNCLASSIFIED

BEFORE

15.  
UNCLASSIFIED  
SECRET



BEFORE

46



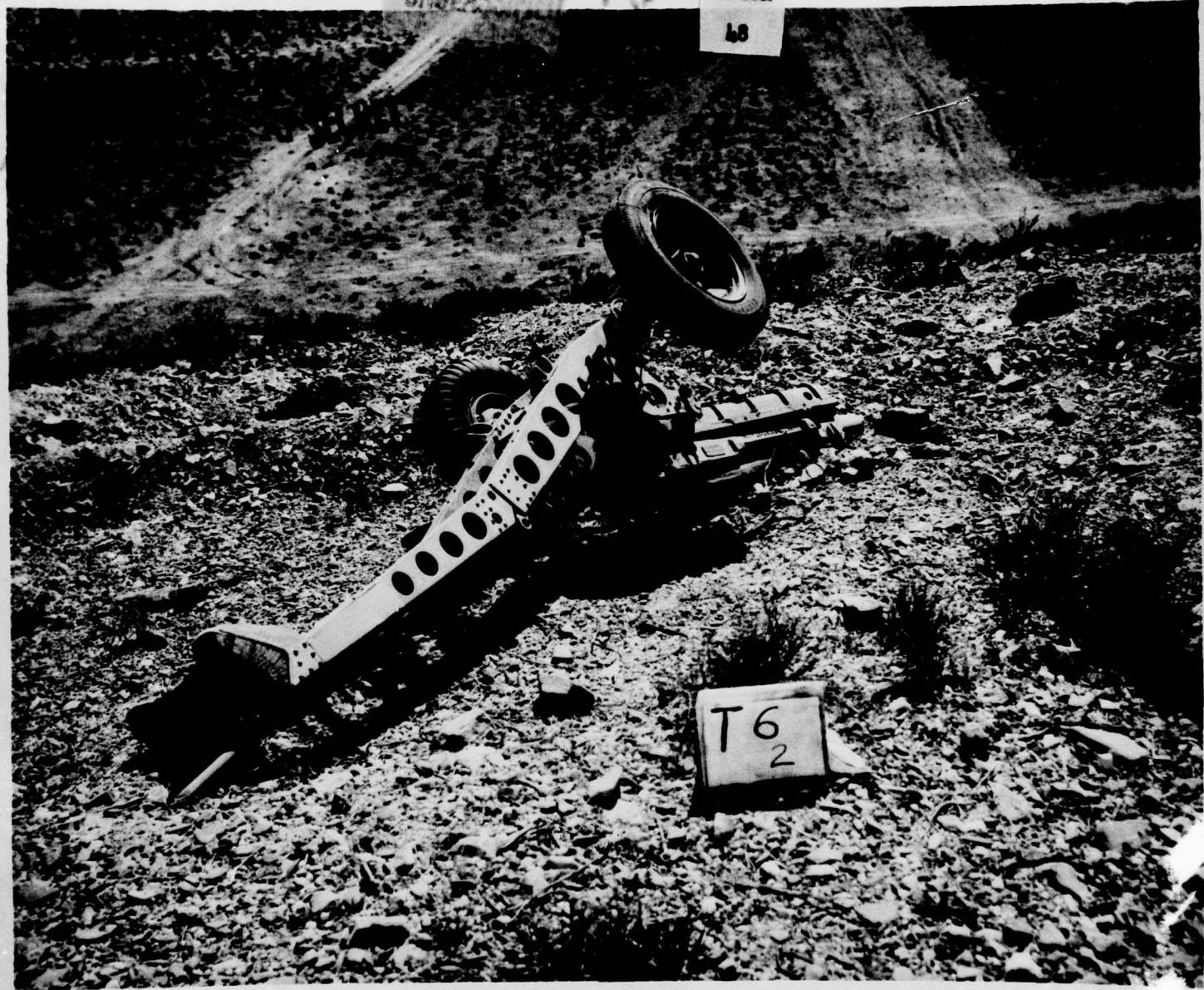
UNCLASSIFIED

T 4  
2

UNCLASSIFIED

AFTER

48



AFTER

47

UNCLASSIFIED



BEFORE

47

SECURITY  
UNCLASSIFIED





AFTER

50

UNCLASSIFIED



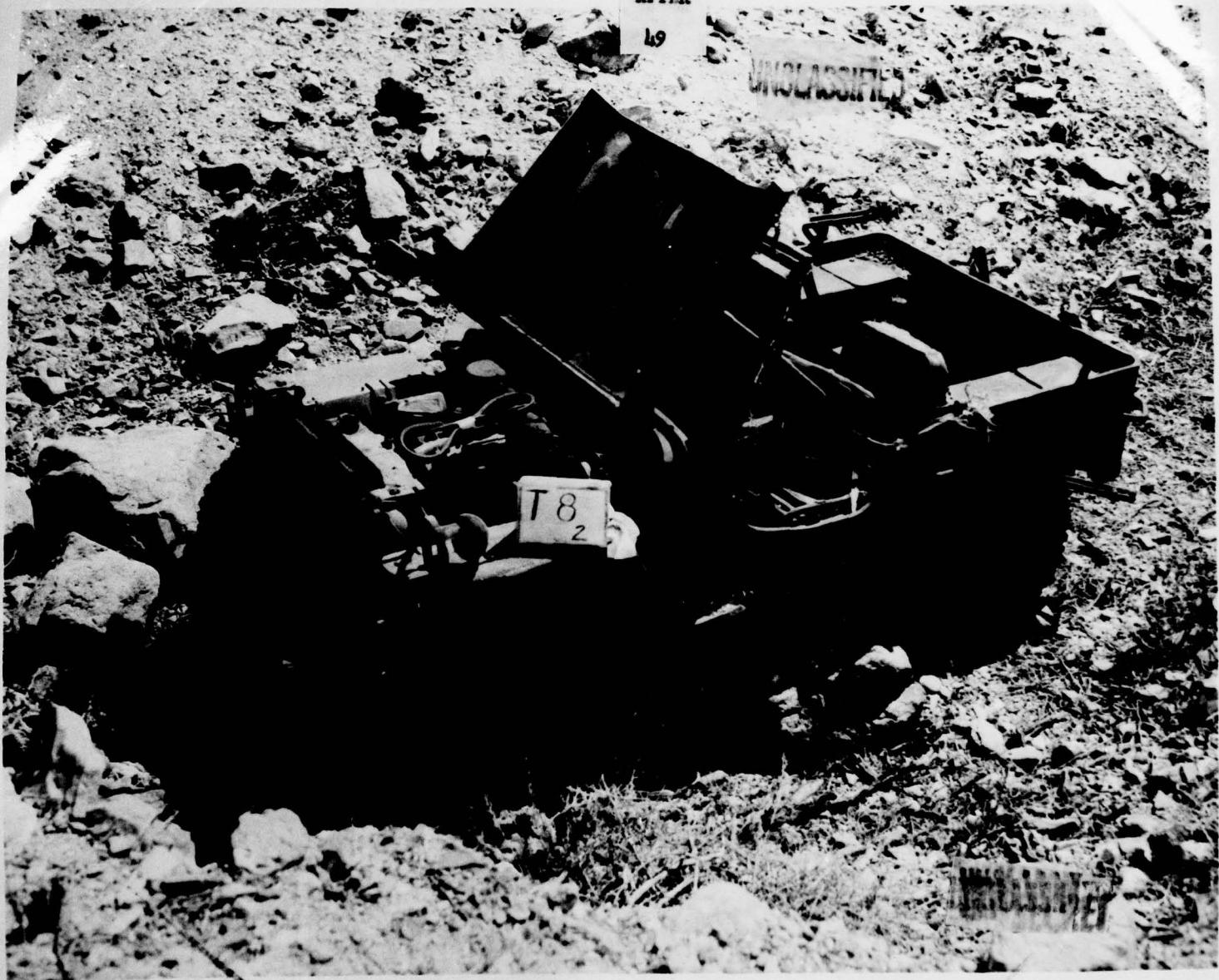
UNCLASSIFIED

AFTER

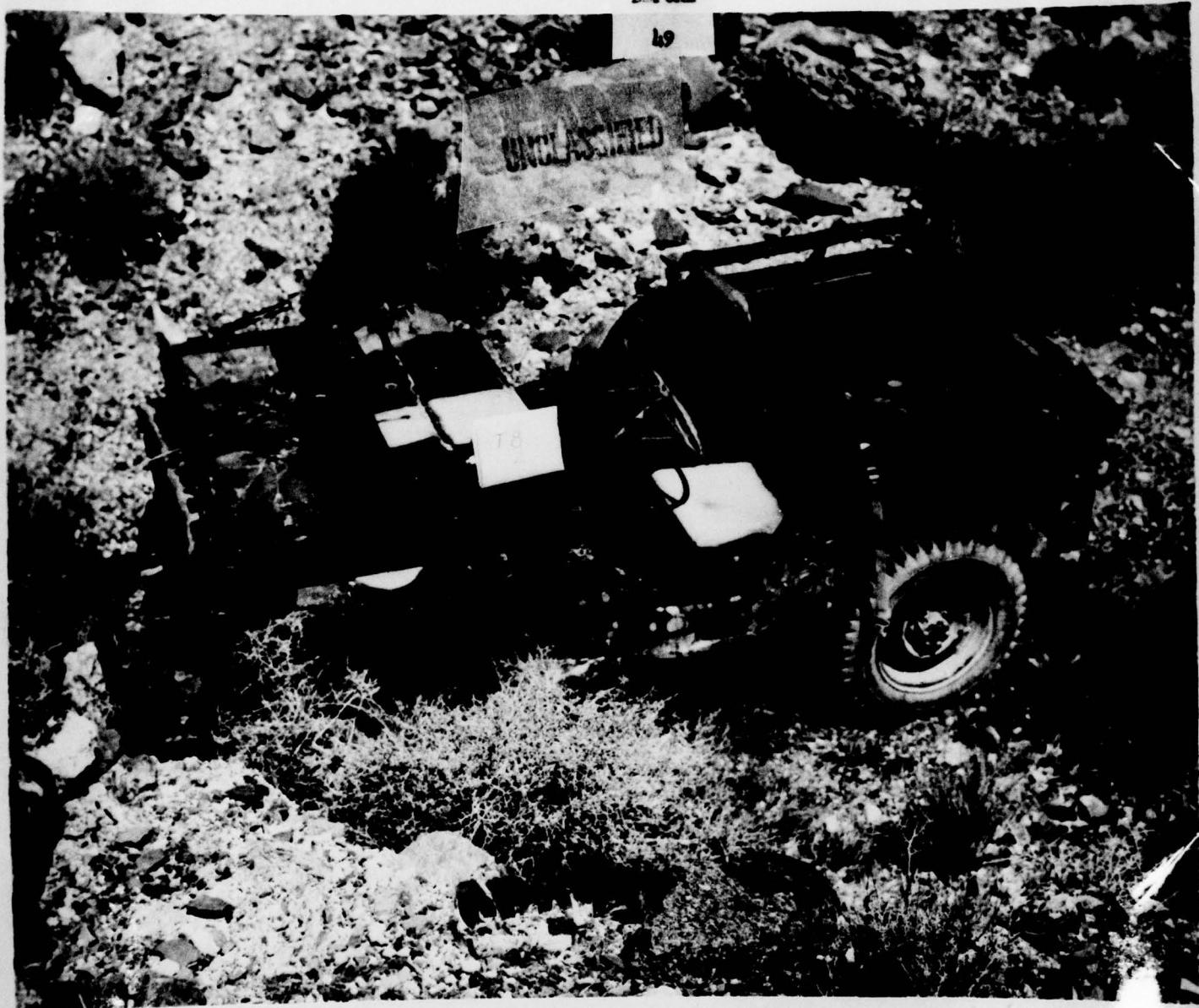
49

UNCLASSIFIED

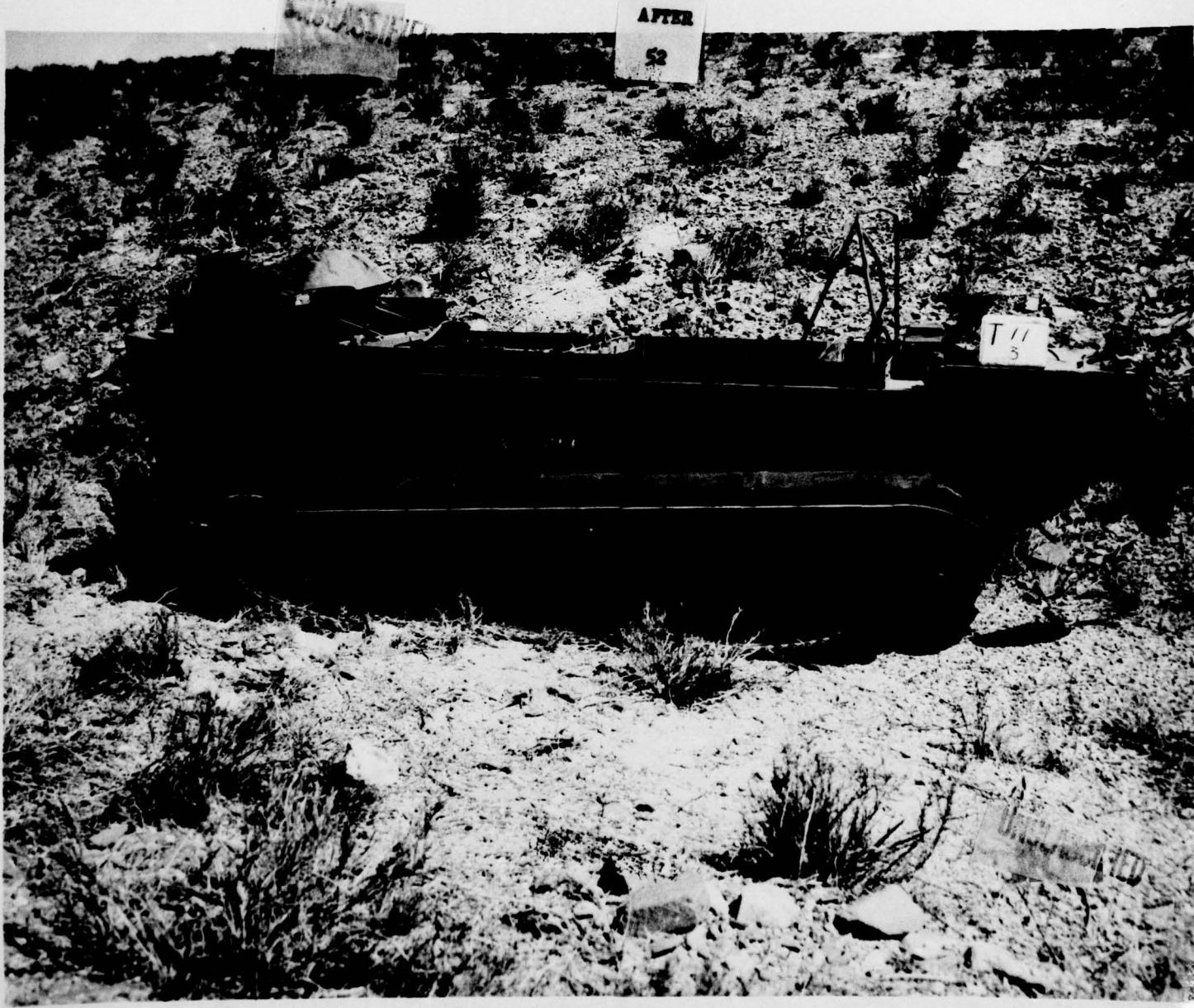
T8  
2



BEFORE







AFTER

52

UNCLASSIFIED



BEFORE

51

UNCLASSIFIED

T 10  
2

U.S. ARMY  
170904

UNCLASSIFIED T

BEFORE

52

~~SECRET~~  
UNCLASSIFIED



~~SECRET~~  
UNCLASSIFIED



AFTER

53

T 1/2  
#1



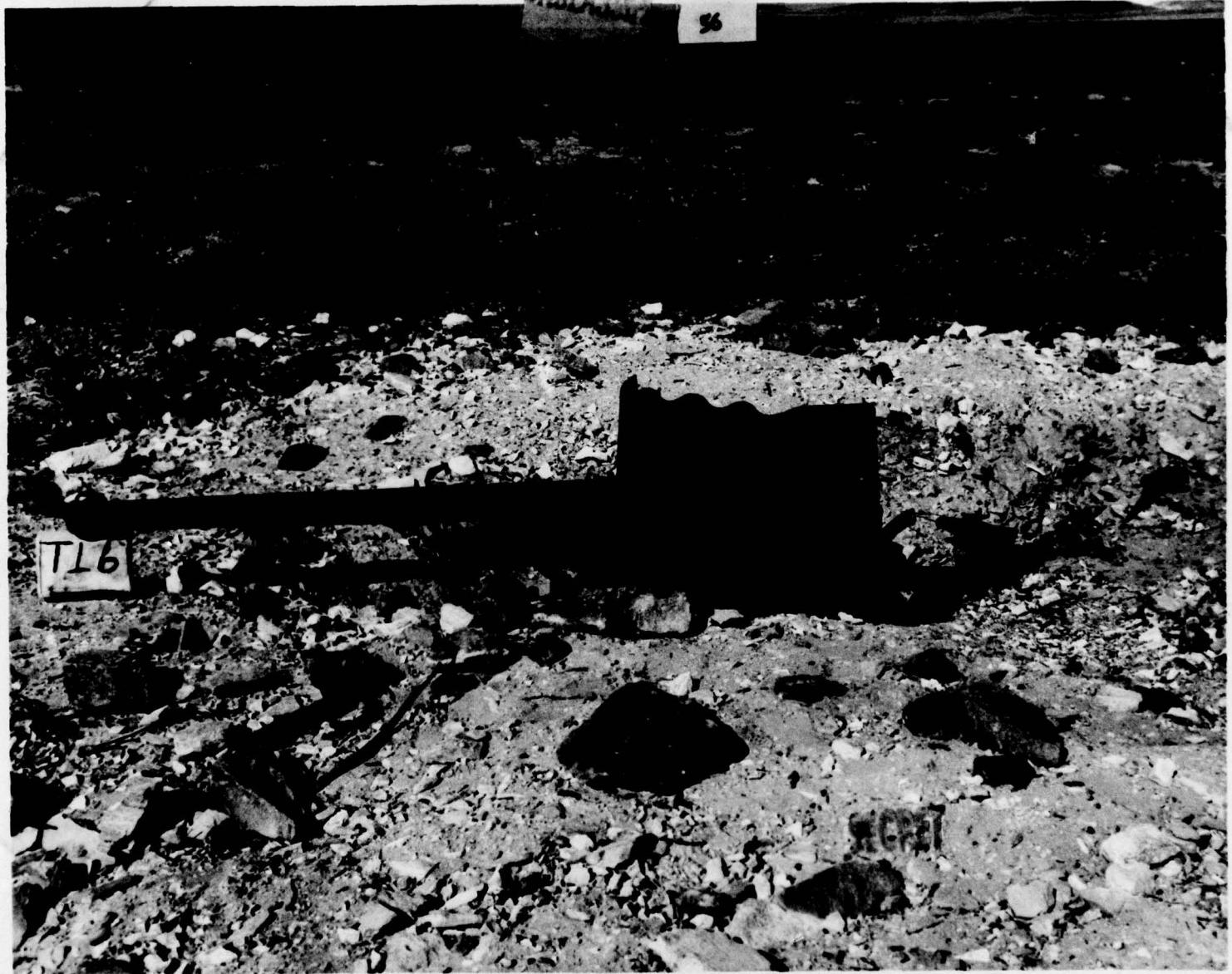
BEFORE

53



BEFORE



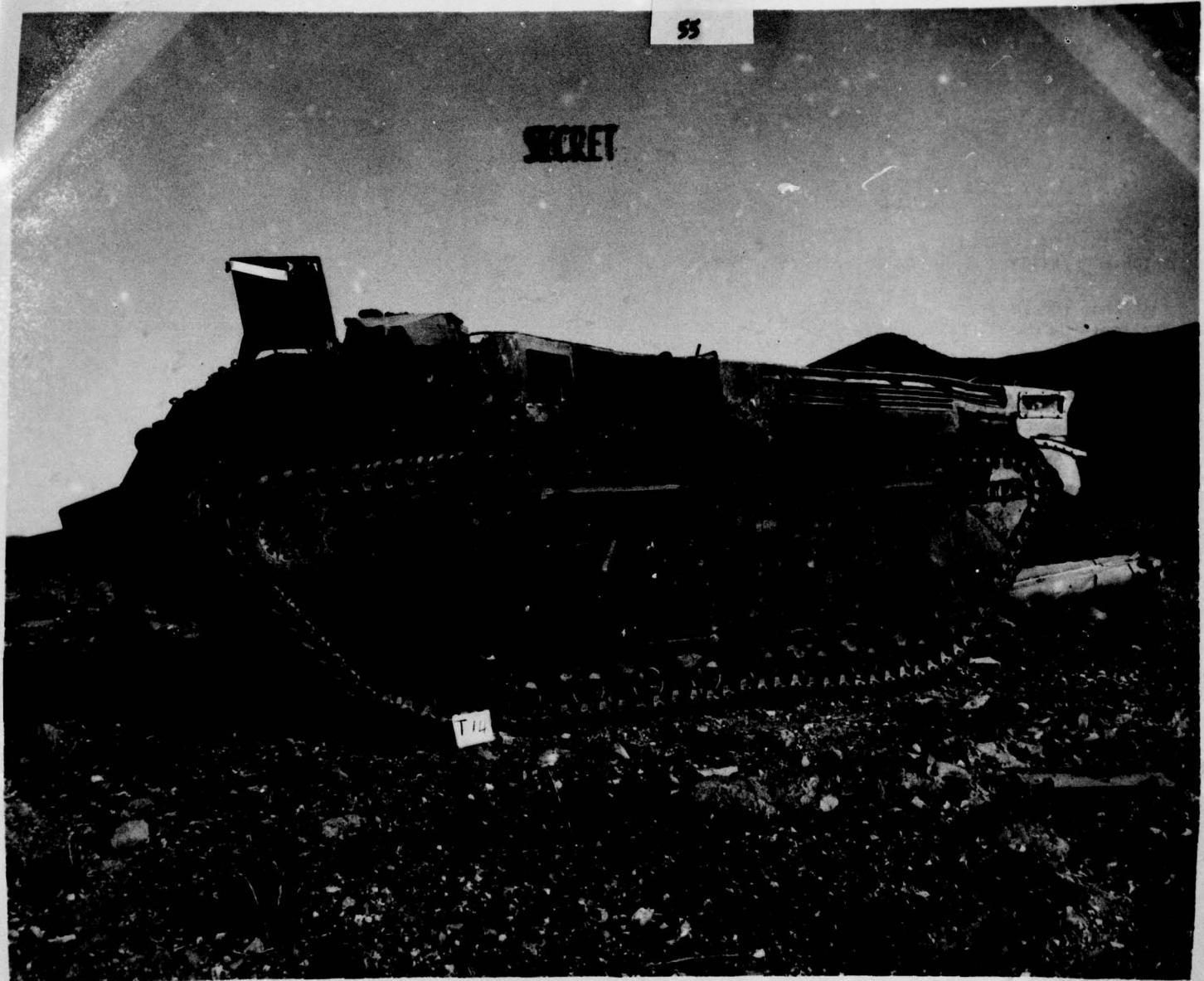


AFTER

55

~~SECRET~~

T16



BEFORE

55

SECRET

SECRET

BEFORE

56

T 16

SECRET  
UNCLASSIFIED



AFTER

57

UNCLASSIFIED

T-7

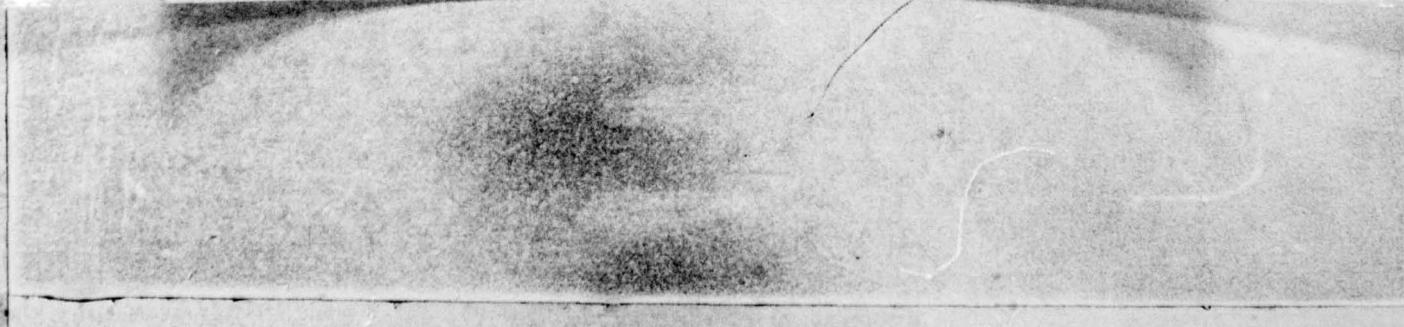
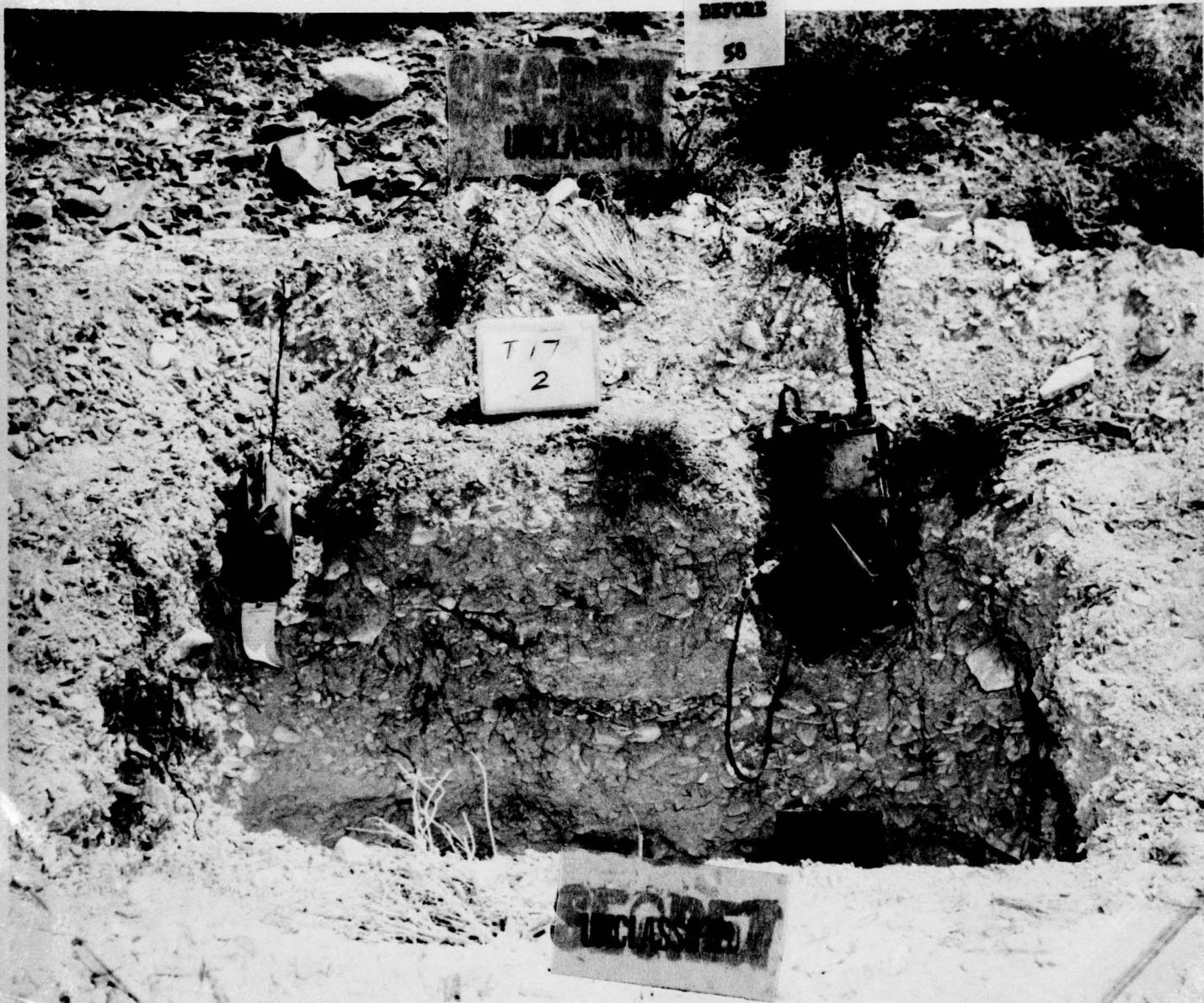


BEFORE

57

T 17  
4

SECRET



AFTER

60

UNCLAIMED



AFTER

59

T47  
10

UNCLASSIFIED

BEFORE

59

~~SECRET~~



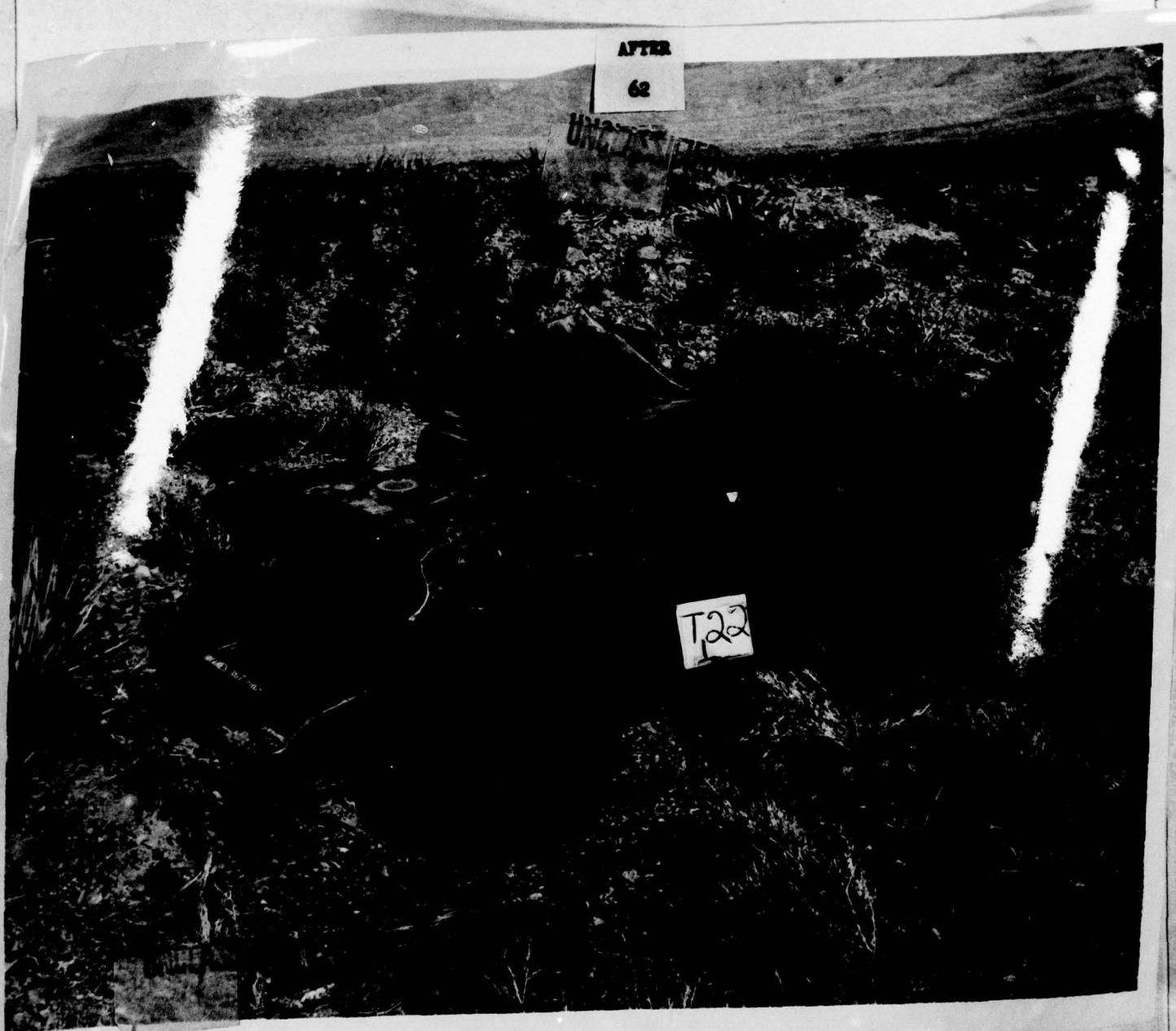
UNCLASSIFIED

BEFORE

60

T20  
1

INCUBATOR



AFTER

61

UNCLASSIFIED

T2L

EXCERPT

62

**SECRET**



5

BEFORE

62



AFTER

64



AFTER

63

UNCLASSIFIED

S A - NY  
3054335

T24

UNCLAS

BEFORE

63

GROSFELD  
1125



BEFORE

64

UNCLASSIFIED



